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SEPTEMBER ISSUE 1985

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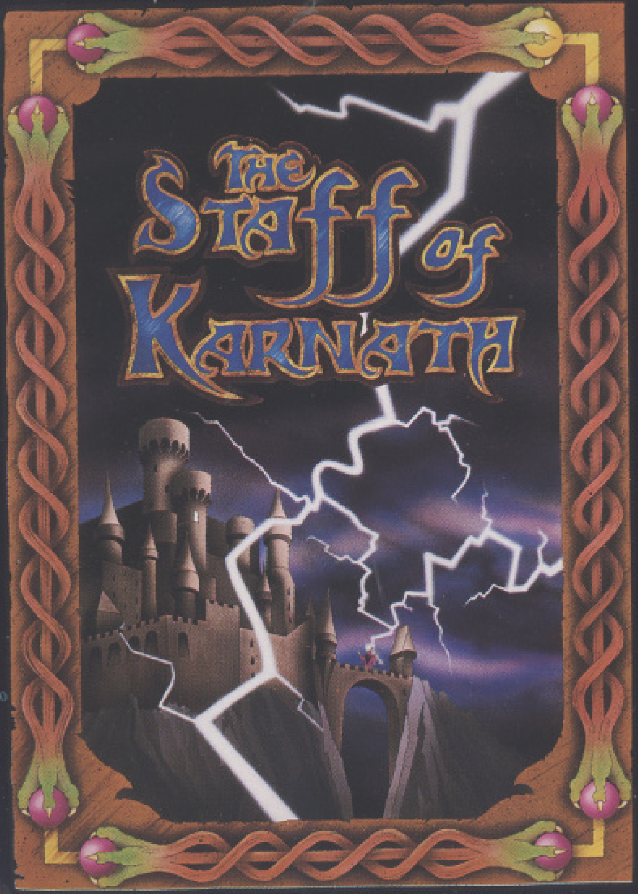

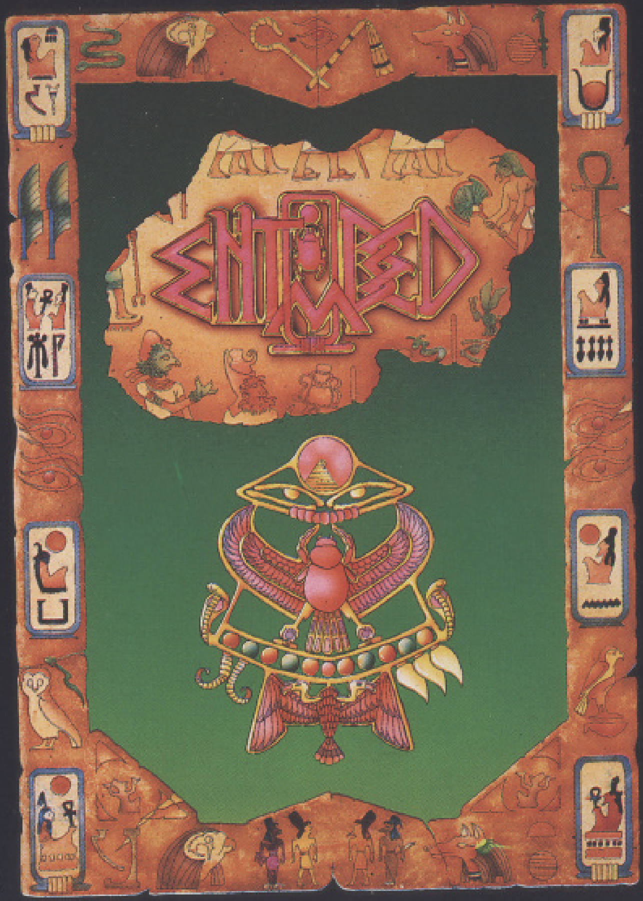

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Commodore owner needs

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COMPUTING
INTERNATIONAL

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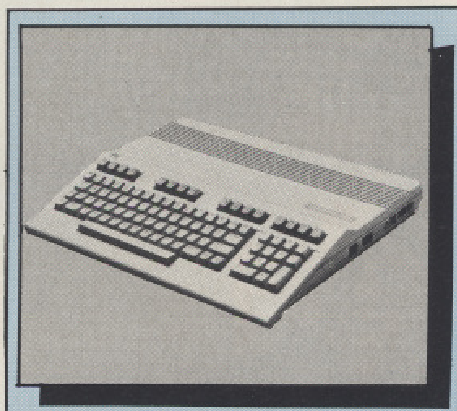

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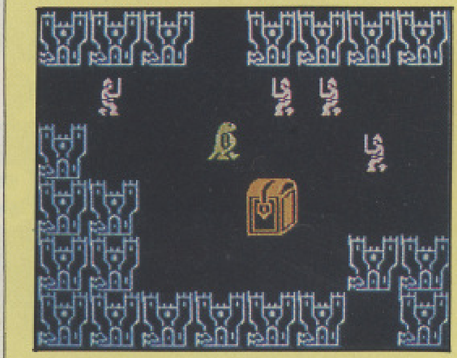

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Wizardry

by

Steven Chapman

(author of 'Quo Vadis')

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Opinion...

Dear Reader

'The status quo' said Kruschev shaking his finger at President Kennedy 'is dynamic!' Another way of expressing the theme you will have to read in CCI; that the only constant in our lives is change. A year or so ago three computer manufacturers dominated a booming home computer market, Sinclair, Acorn and Commodore. Today in a world where small computers are no longer a fad two of those erstwhile giants are in such serious trouble that their sales have practically ceased and the other, Commodore, bestrides the market.

Who would, in their right mind, buy anything but a Commodore today? And Commodore have chosen this very opportune moment to introduce some outstanding new products to consolidate their dominance and the 128 computer and 1571 disk drive are exceptional by any standards – as the reviews in this issue of CCI show.

It is always reassuring to be associated with the best and by bringing out products like these at this time – especially as they are compatible with Commodore's world best seller, the 64 – CBM must gain greater prominence still in the computer field. That will benefit everyone who has a Commodore by making better, cheaper hardware and software more widely available.

By the way, next month's CCI takes a close look at Exodus – Ultima III – the only game ever to stay 96 weeks in the US charts. 96 weeks . . . when it first entered the charts Sinclair and Acorn were valued about £250,000,000 . . . and now they are worth practically nothing. About that dynamic status quo . . .

Sincerely

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...news...news

Compec is coming

For those of you who like to plan ahead, the UK's largest exhibition for professional computer users opens for four days at Olympia II on November 12. With the move to Olympia, Compec has grown by nearly as much as 25%, allowing for many more exhibitors.

Ocean utilities

Ocean Software, a company well-known for its games software, has acquired the sole rights to the award winning Oasis range of utilities software.

The programs, including White Lightning, are to be released under a new label, to be called Ocean IQ. This will deal purely with Ocean's utility programs, an area in which they plan to expand with in-house programs as well as the Oasis software. The new programs are hoped to be ready for release at the PCW show in September.

Compucard on Compunet

Members of the Compunet database can now access Compucard for a three month free-trial and test the idea of true armchair shopping. At a normal cost of £20 per year, Compucard allows you to browse through a catalogue of 22,000 products, varying from computers to washing machines.

Ordering is through recognised credit cards, and having ordered, the product is delivered to your door. As well as ease of purchase, Compunet offers a wide variety of discounts, backed up by a guarantee that if you don't save £50 in one year your membership fee will be refunded.

Micro media

Young computer whiz potentials in the West Country can explore "the wonders of the microchip" in a new series of HTV's Video and Chips.

The ITV network is putting the programme together to be shown starting Wednesday, 14 August. Among the topics will be car design, tracking Halley's Comet, the workings of an airship and tomato growing at a power station.

Along with the usual weekly competitions, special features during the season will include a joint effort with the French science magazine programme Pic Et Poke. Video and Chips is presented by Mick Brown with help from two teenaged reporters aged 13 and 17.

Schools computer quiz winners

The British Computer society and Commodore have announced the winners in the 1985 Schools Computer Quiz organised in association with the Computer Education Group. The overall finals took place at the University of Reading, and the winning team was from Warwick School, consisting of Greg Michael, 16, Chris Purvis, 16 and Tom Duffy, 16. They were competing against a team from Woodchurch High School in Birkenhead.

The winning school was presented with £1,600 worth of Commodore computers and peripherals: the runners-up received Commodore items to the value of £700.

As well as these prizes, each individual member of the winning team received a voucher for a weeks free Computer camp course at Camp Beaumont – the runners-up receiving vouchers towards the same.

As Derek Harding, secretary of the BCS, said, "This has been the most successful Quiz to date and, with Commodore's help, has now become a major national event, bringing the world of computers closer to young people."

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d = disk c = cassette r = cartridge

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...news ...news

FAST moves quickly

FAST, (the Federation Against Software Theft) has recently achieved the first and most important of its aims; by having the 1956 Copyright act amended to state that unauthorised copying of computer software is illegal.

The act was sponsored by William Powell, Conservative MP for Corby, and has now a maximum penalty of £2,000 per item or two months imprisonment for selling, or an unlimited fine or two years imprisonment for distribution or importing of copied products.

It was announced on July 16 that Royal Assent has been received and therefore these additions will come into operation as from September 16.

Get ready for MUD

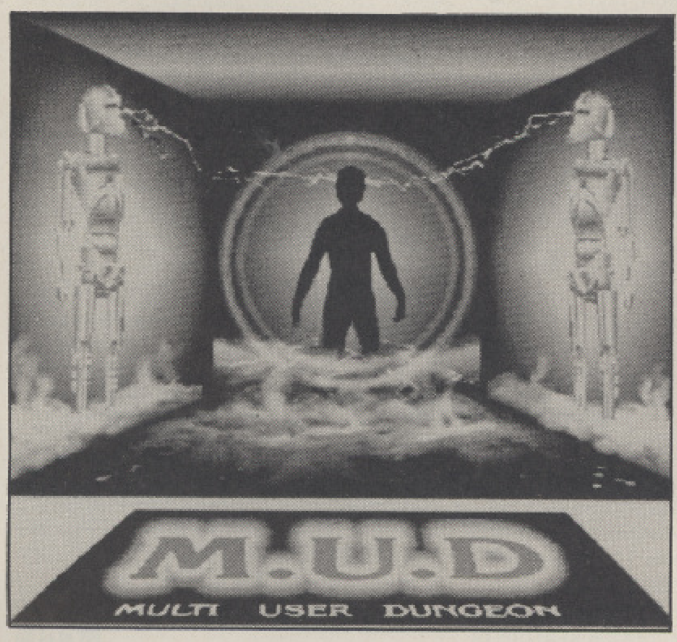
M.U.D., the now nearly legendary multi-user dungeon game, is to become more widely available from November 5th when Firebird will officially launch a M.U.D. spectacular.

The first preview will be on the Firebird stand at the PCW show on September 4-8. After then you can become a fully fledged MUDDER by paying £20 for your starter kit, which comes with 30 credits, and then £10 for fifty credits which will allow you five hours play.

By introducing the new enhanced version Firebird hope to increase the popularity of this totally wonderful game, and with worldwide participation it deserves to be a success.

To access M.U.D. you need a modem and some bulletin board software or some software to make the 64 act as a dumb terminal. The Compunet modem will allow you to access M.U.D. quite happily at 1200/75 baud rate, which is preferable as battles at 300 baud tend to lack just that little piece of reality.

The real aim of M.U.D. is to progress from being a mortal to being a Champion and eventually become an Arch Wizard. Once there you are totally invincible and cannot even die!! Don't raise your hopes too high, however, as you will have to play for quite a while to get that far, phone bill allowing!



Commodore Comments...

CCI is pleased to welcome Commodore to the magazine. Starting this month, we are giving Commodore this space to talk personally to you, our readers. The opinions published here are those of Commodore, and do not necessarily concur with the views of CCI.

Introducing 'Commodore Comment' is General Manager Nick Bessey who joined Commodore in April, after spending 12 years with IBM.

"Just as the home computer industry is changing, so is Commodore. Research shows that buyers are quite rightly demanding more for their money and we ignore that demand at our peril.

Gone are the days when it was enough to offer a great games machine. Today, the customer wants not only improved functions, but also compatibility, better advice and support and – above all – real reasons to by.

Indiscriminate price cutting is not the answer. It devalues the product and, more importantly, threatens the livelihood of the entire industry. The time has come for far greater responsibility and maturity from both those who make and those who sell microcomputers.

The Commodore 128, when it is launched later this year, will demonstrate our commitment to the market we created. It will not be cheap. But it will be exceptionally powerful, fully-compatible with the world's best-selling home computer – the Commodore 64 – and the definitive answer to the needs of the professional home user.

Moreover, it will be fully-supported by the resources of the world's only truly international home computer manufacturer. Ultimately it is the level of support and long-term commitment available from manufacturers which will dictate who succeeds and who fails in this particularly volatile market.

One thing is certain. No-one wants to buy a home computer without seeing a clear upgrade path.

Our customers can be assured that at Commodore we are already forward-investing and paving the way to the next generation of machines.

We believe that's why everyone of our users can be as confident of the future as we are."

Whoops, we've got our sums wrong. The amount on page 18 should read £25,000 NOT £5,000!

Revolution USA

In America software houses are asking owners to copy their product and give it away! Fred Owens discusses this new alien marketing method.

Have you ever bought a new piece of software only to have it not quite measure up to your expectations or, worse yet, not fit your needs at all? Have you ever listened in horror while your 1541 beat itself to small pieces loading your favourite "protected" program and wondered if you and your drive would live through it? Well, it's just possible that a new idea from the USA could make the future a little less destructive to your equipment and your bank account.

Quicksoft (219 First North, #224, Seattle Wash, 98109) call it SHARE-WARE: when it's done by a private individual it's called FREEWARE or HONORWARE. Whatever it's called, the concept is totally alien to all previous marketing methods the software houses have used. In fact, instead of hiding a program under layers and layers of errors and taking a whole disk for a 10K program, they are actually asking owners to copy their product and give it away!

It works like this. You want an XYZ program. I have one that you're interested in, but not enough to spend BIG MONEY without a trial. I duplicate it, give you some basic instruction, and send you home to try it out – your pounds safely in your pockets. (If you're interested and can't find an owner, most companies will send you a disk, for a small fee, to get the ball rolling.) If you like it and want to use it regularly, you send off your money to the originating company and they make you a registered owner. If not you simply new the disk and keep up your search.

"Incentives to register"

As a registered owner, the manufacturers give you updates (some free, others at a small charge), a printed manual, telephone support with problems, and a newsletter. As an added incentive, some firms, (Quicksoft for one) pay the one making the copy a fee if you eventually register as an official user.

The user gains several things from this operation.

First, you eliminate, or at least significantly reduce, the element of chance when you buy a program. Just think of all the space you'll save without those programs that you don't need lying around. Next, you never have to wait for, or pay for, a back-up copy of a program you need badly. You simply make it yourself! You have no rat-a-tat-tat to listen to while you're loading and no problems with head alignment on your drive.

This all sounds great for you. But, what do the companies get out of it? After all, they need a reason too.

Let's start from the most important reason from the software providers point of view. IT'S CHEAPER! A huge amount of money is spent on protection schemes, most of which last about a month before they become history. There's nothing a pirate likes more than the challenge of a new protection which is "unbreakable". In addition, it's a pain in the neck to keep paying good programmers to create such temporary, and non-profitable, work.

"Fewer unhappy owners"

From a customer relations standpoint, the free trail you get to help you decide if you really want to buy means software companies have fewer unhappy owners. The reduced cost realized by not paying for glossy packaging, continuous high impact advertising, distribution, and copy protection of disks, means you pay less for the software.

As an example, PC-Write from Quicksoft is a full-time function, highly technical, word processor for PC's and compatibles. It's comparable to programs costing over $200. Yet it costs only $75 through share-ware.

The small, home programmer can use this system to his advantage too.

Let's say that I write a useful utility for my 64. If I want to get it out to the most people, I have to find someone who will help me market it without ripping me off. This will obviously take time and trouble to ensure a reputable firm is located. Well, I could put it in the public domain couldn't I? Yes, but what would I get from that? I mean, I don't need to make millions, but I'd like to break even for my time!

With free-ware, I simply put a frame in the program asking for a remittance from users who find the program useful. Then I send out copies to user groups and clubs with their own libraries. This is currently being done with success by many "program at home" people in the USA. Okay you say, there must be drawbacks to this or everyone would do it. I don't think there are many, but I admit it won't work in some cases.

This system is best suited to business applications and utilities which require large operating manuals to describe their complex operation. Also included would be adventure games with lots of supporting literature, or special purpose software created for a limited audience such as college lecturers, doctors, and so on.

"Arcade games unsuited"

It follows that some things aren't suitable for this innovation. Arcade games, for instance, don't have a large profit margin and don't need the documentation that some business applications need. They are probably best protected by dongles or other hardware devices and not attempted as freeware.

Why won't the people wanting the programs simply copy them without registering? Most will want the security of the after-sales support the company can provide as well as the full documentation needed to run the more complex software currently coming onto the market. On top of this there's the conscience factor. People, for the most part, are fair-minded and will pay a fair price for software they really need. The inflated prices on the software market themselves are a factor in getting the average honest user to start copying illegally.

So is this new American revolution the saviour of our drives? Probably not. Gamers amongst you are going to have to fight on for non-destructive protection. But, for those of you who need the kind of software requiring a big investment, this idea might just give you relief from the "Beat My Drive to Death Blues".

Here's a partial list of other companies doing similar things. It's not all inclusive and I would welcome any news of progress in this area within the UK. *Button Ware P.O. Box 5786, Bellevue Wash. 98006; Charter Software P.O. Box 70, Monticello Ill. 61856; Headlands Press, P.O. Box 862, Tiburon, Cal. 94920; Stillwell Software Products, 16403 N. 43rd Dr., Glendale Ariz. 85306; Expressware, P.O. Box 6275, Rancho Palos Verdes, Cal. 90734.*

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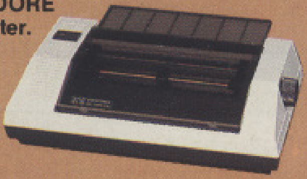

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ON TES

...THE COMMOD

With the unexpectedly limited impact of the Plus/4 and C16 over the Christmas period it came as no real surprise to hear that Commodore were releasing a new computer. What was a surprise however was the inclusion of two processors enabling the new computer, excitingly named the 128, to run original 64 software, new 128 software, and, perhaps most importantly, the huge bank of CP/M software.

HARDWARE

At first glance the 128 appears to have been extremely well thought out: the keyboard is large, well-sculptured, has a positive if a little spongy feel to it, and is angled well to maximise user comfort. The case is not too large as to be obtrusive and is a pleasant pale beige colour. The input/output ports are situated on the back and right hand sides of the computer, and are of the usual Commodore type.

The ports consist of two standard 9-pin D-type joystick ports and a reset button on the right, while the rear contains the user port, cassette port, serial and video ports, as well as the expansion and RGB interfaces. All of these work in the standard 64 way, apart from the two new additions: the reset button and the RGB.

"Recessed re-set button"

The reset button is one of the things always wanted by 64 owners as it saves losing everything in memory every time the programmer wants to jump out of a running program. On the 128 it is in a position of easy access, yet it is slightly recessed to avoid accidental operation. The RGB Video output is necessary as in 80 column mode standard composite monitors cannot produce the required resolution. Also included in the RGB output is a Composite Monochrome pin to enable use on a non-colour monitor.

Perhaps the most obvious new additions are the extra keys — most importantly the numeric keypad. As well as that, other major keyboard differences from the 64 include the addition of the following keys: ESCAPE; TAB; CAPS LOCK; ALT (which is redundent on the English version but is planned as a differing character set in Europe); 40-80 column select key; NO SCROLL; four extra cursor keys, separated from the normal keyboard; and a very useful HELP key which highlights the line on which a programming error is on. In addition to these, the Function keys have been moved and are now horizontally placed above the numeric keypad.

"Favourably comparable"

It is additions like these which make this keyboard so good. It is favourably comparable with the newer breed of 16-bit machines, and easily better than that of the Plus/4 or 64.

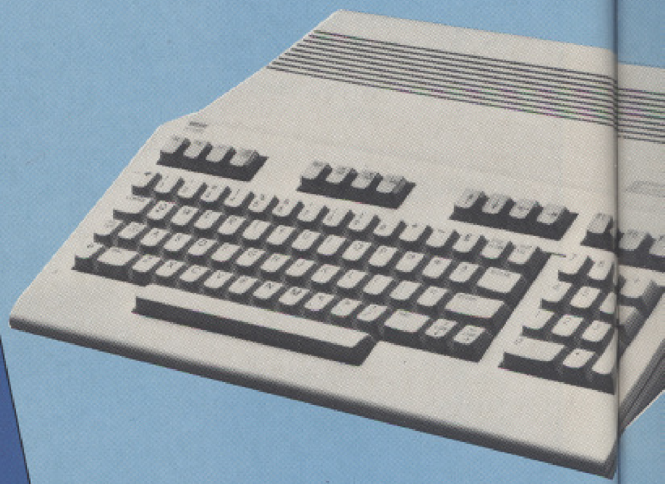
As the machine I used was a pre-production model all the internals were unfinished, meaning that the finished PCB will contain few, if any, Eproms. Apart from this the model was identical to the one due for release shortly.

The 128 has two main processors, firstly a 8502, which is a direct descendant of Commodore's range of chips and therefore 100% compatible with the 6510 range of chips. Secondly, a Z80A, for the handling of CP/M operations.

By using a development of its own 6510 processors, Commodore has managed to allow the 128 to completely emulate the 64 while having a total of 128K paged in.

"Outstanding graphics"

The outstanding graphics and sound of the 64 are available on the 128 in exactly the same way and indeed are handled by the same two chips. Also carried on from the 64 are the block graphics commands, available either in normal 40 column mode or, more surprisingly, in high-res 80 column. The use of the high-res graphics, however, is limited to the 40 column mode, as the only way to display high-res graphics in 80



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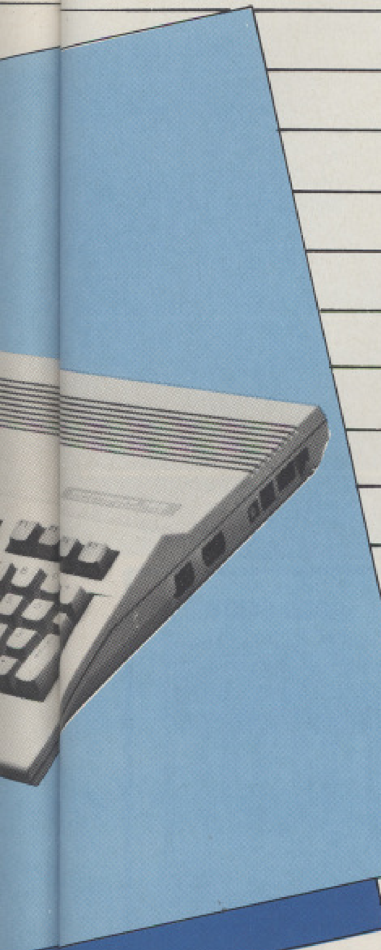

DORE 128...

column would be to write your own software to exploit the possibilities of Bit mapping the screen. The resolution allowable for colour graphics in 40 column are 300 × 200 high-res, and 160 × 200 multi colour. On top of these you have the normal eight sprites available, though again these are limited to the 40 column mode.

LANGUAGES

In including — at no extra cost — CP/M, Commodore has given the 128 a slight personality crisis. The difficulty is that CP/M is still associated with large, ageing, business machines and so the buying public may be wary about buying a home computer with such obvious business aspirations, or a business computer with roots firmly in the home market. The saving grace on this front is that Commodore decided to include the newest 3.0 version, which is far superior to the more common and outdated 2.2 version.

Already many software houses are converting both CP/M and other software for the 128 as our software table shows, and many others are sure to release enhanced versions of 64 programs using the extra features and memory of the 128.

> "123K for machine code"

When using the computer in 128 mode, the differences between it and the 64 are less than completely obvious, apart from the optional 80 column mode. For basic programming there is nearly 58K of text space available as well as another 62K for stored variables. For machine code programmers there is a full 123K available which should lead to some stunning programs appearing soon.

Two of the nicest features of the 128 are the built-in software — firstly a Sprite Definer and secondly a Machine Code monitor. To use the Sprite Definer you simply enter SPRDEF ›RET‹ when in 40 column mode and you are free to define all eight sprites with ease. All defined spirtes can then be placed in available memory or saved to disk.

The Monitor, with built in disassembler, is accessible by pressing f7 and has a host of useful commands and also allows you to issue DOS commands without exiting the monitor. A mini assembler is built in which covers the essentials of aiding programming, but does not try to be too comprehensive, leaving the marketplace open for a more complete package.

> "A good basic at last"

In the 7.0 version of basic for the 128, Commodore has gone a long way to correct or improve on the major faults of the 64, and in doing so has created a really good basic at last! Commands such as IF . . . THEN . . . ELSE have been included with further extensions possible using the BEGIN and BEND commands.

Another important addition is the complete simplification of the previously overcomplicated sound commands. Now you can use the PLAY command to choose the voice, octave and tune envelopes (previously defined using the ENVELOPE command), and the volume.

This really does make using the excellent sound potential much easier. The graphics section of the 128 is also not without new commands. Circle, for instance, allows the creation of arcs, elipses and circles at specific positions on the screen. The paint command allows you to fill areas, and there are other commands to draw and rotate boxes, as well as commands to create text windows in both 40 and 80 column mode.

> "Key command included"

Another overdue inclusion is the KEY command, which means you no longer have to write a machine code routine to define the function keys. By improving the basic in this way Commodore has gone a long way to answer the ciriticisms levelled at them.

The last and perhaps most important mode — as far as previously released software is concerned — is the 64 mode. From power up you can enter 64 mode either by holding down the Commodore key or by typing the GO64 command. The screen then changes to the normal 64 screen, and you are free to use it as you would any normal 64.

The only differences are very small changes in the Video chip where there are two new registers, one to select the keyboard scan and the other for use as a test bit. In normal use these will be of no consequence to programmers, although a few software companies have used these areas to store data in 64 programs. The test bit will unfortunately cause the 128 hang, but luckily very few programs have actually done this and all the software houses who might use this area, such as certain Turbo Loaders do, have been notified so that the programs can be modified in time for the release date of the 128.

CONCLUSION

Overall the 128 is a highly polished and well put together machine. The pre-production manuals I saw were also excellent, by Commodore's standards (lets hope this starts a trend!) and adequately detailed. By including the 64 mode Commodore has opened the door to a huge base of well produced games and business software, and as our table shows this is likely to grow as more and more software houses exploit the larger reserves of memory. By using the CP/M standard the 128 could also be used as a full blown business machine.

In my view the 128 deserves to succeed, and if it is competitively priced (estimates have varied wildly from £250 to £600) I have no doubt it will become the market leader in the home and lower business markets.

Francis Jago

MICROSOUND DIGITAL MUSIC SYSTEM

THE FIRST PROFESSIONAL DIGITAL SAMPLING SYSTEM FOR THE COMMODORE 64

SYSTEM SPECIFICATION

Sample recording
User definable trigger level, trigger delay, input filter level (bandwidth 4–15KHz), and sample rate (4–33KHz).

Real time bar graph display of input level with clipping indicator.

Sample editing
Mix, reverse, loop or delete any part of the sampled sounds.

The full 40K sample memory displayed on one screen, complete with two sets of start/finish pointers and the edit cursor.

Select any section of memory for the storage/playback of samples.

Sample playback
Via Microsound 64 keyboard. Envelope/LFO control of amplitude, LFO rate controlled in real time by the keyboards slider control.

Programmable output filter level and looping on/off function.

Samples played back over the full 4 octave range with no distortion.

Split keyboard facility allows all the aformentioned functions to be programmed for EACH half of the split.

Via QWERTY keyboard. All the above except LFO modulation.

Via MIDI. As QWERTY but with programmable MIDI channel allocation.

Sample storage
The 40k sample area can be saved directly onto disk along with all the user defined variables set up in the program (eg. envelope levels, filter levels etc.) This allows the sounds to be loaded and played back exactly as they were set up originally. Files may be deleted if necessary.

A catalogue of the sound files on the current data disk is also displayed.

Hardware
A robust, compact unit measuring just 230 × 120 × 35mm.

Built in MIDI interface for the reception transmission of MIDI data.

Pre/de-emphasis circuits to eliminate quantitisation noise.

Programmable 24dB anti-aliasing (distortion) low-pass filter, bandwidth variable between 4 and 15KHz.

Digitally controlled output amplifier for real time envelope LFO modulation.

Input amplifier with adjustable input level, suitable for mic or line signals.

Output volume control and power on off switch.

Power supplied either by battery or optional AC adaptor.

Connection via COMMODORE 64 cartridge port.

System described above (excluding keyboard) ONLY £299 inc. VAT and P & P

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Microsound 64 keyboard and SiD-based polysynth software (still the best available) NOW ONLY £149 inc. VAT and P & P

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MOZART
Pop Hits
Beatles

PLAYALONG ALBUMS

For beginners and Musicians alike. Anyone using a Playalong Album can:

- Play a dozen tunes just by tapping the timing on a key.
- Play pre-programmed accompaniment which waits for user to play the correct melody note.
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- Enjoy listening to todays arrangements while watching exciting screen graphics.

All Playalong Albums come in full colour packs and contain music book with hints on playing. They are available with disk or cassette and is Midi compatible. £9.95

THE COMMODORE MUSIC MAKER

COMMODORE MUSIC MAKER
MUSIC KEYBOARD

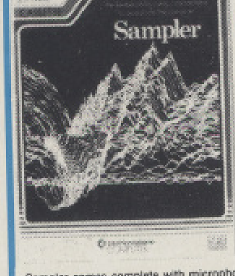
Turns the Commodore 64 into a marvellous musical instrument. Music Maker enables the user to create electronic sound effects or synthesize dozens of instruments – even become a recording artist. Contains everything needed to make music right away: Music Keyboard overlay: easy to understand software program with pre-programmed songs for instant enjoyment: songbook and music tutor with 28 famous popular songs, featuring music notation for those who can and cannot read music; complete user's guide to the Music Maker program. Packed in handsome full-colour gift box. With disk or cassette. £19.95

PRO-SYNTH

Turns a Commodore 64 into a professional synthesizer and multi-track sequencer.
With the pro synth the user can:

- Operate 'on-screen' synthesizer controls just like a full size instrument.
- Build up recordings, edit, even effect sound changes for playback by using step or real time recordings.
- Use the midi mode to connect into a synthesizer or portable keyboard. With midi facility to play back, or record.

The Pro Synth comes in full colour pack and contains users guide and start book. £14.95



COMMODORE SAMPLER

Turns the Commodore 64 into a low cost sampling unit, which the user can:

- Record any sound and play it back over a 10-octave range.
- Alter recorded sounds.
- Store four sounds in 'memory'.
- Play sounds over the top of the computer's SID chip or any MIDI equipped keyboard.
- Achieving echo effects with variable delay time.

Sampler comes complete with microphone, all necessary hardware and user's guide. In full colour gift pack. £69.95

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128 SOFTWARE TABLE

Using the 128 mode the following companies are planning releases:—

JCL, 1 Sheffield Road, Southborough, Tunbridge Wells, Kent. Tel: 0892-27454.
Assembler — using the 80 column mode.
Accountancy Package — completely integrated full accountancy package for the small business user.
Multi Lingual Word Processor — planned using six worldwide character sets.

Precision Software, 6 Park Terrace, Worcester Park, Surrey T4 7JZ. Tel: 330-7166.
Superscript — an advanced word processor.
Superbase — a stand alone database which, when used in conjunction with Superscript forms an integrated office package.

Anirog, 29 West Hill, Dartford, Kent, DA1 2EL. Tel: 0322-92513.
Two as yet untitled games, an adventure and a Fighter pilot type game.

Using the CP/M mode the following are planned:—

Ashton-Tate, Oaklands, 1 Bath Road, Maidenhead, Berks SL6 4UH. Tel: 0628-33123.
DBASE II — Perhaps the definitive CP/M database.

MicroPro, 28-31 High Street, Wimbledon Village, London SW19. Tel: 879-1122.
Wordstar — Another recognised word processor.

Thorn-EMI, Thomson House, 296 Farnborough Road, Farnborough, Hants GU14 7NU. Tel: 0252-543333.
The Perfect series of office management programs.

ON TEST...

Possibly the biggest criticism of the 1541 disk drive was its speed of access and incredibly slow loading times. This culminated in the ridiculous state of affairs whereby some Turbo loading tape games loaded faster than their disk counterparts.

With the launch of its new computer – the 128 – Commodore has at last taken a large step forward by releasing the 1571 disk drive to compliment the system (though totally compatible with the 64, to realise its full potential you must use it in conjunction with the 128). The 1571 in comparison to the 1541 is an absolute work of art. Neatly shaped and finished in a subtle shade of beige, it matches well the 128, as does its performance.

"Accessing exceptionally easy"

Using the DOS commands of 128, accessing the drive is exceptionally easy. Cataloging the disk is now handled by the command DIRECTORY and there are also commands to format and verify the drives.

The 1571 holds 340k of formatted information on the two sides, unlike business machines. However, these two sides cannot be accessed individually and in fact in all respects as if they were on one side of a disk twice the capacity of the 1541.

In 64 mode it can handle a maximum of 300 characters per second, but this is a failing in the serial port of the 64, as in 128 mode it can load a program at 5200 characters (nearly 5.5k) per second.

In a comparison test carried out by CCI the following times were recorded:—

To load a 20k program.
1541 .... 21 seconds
1571 .... 3.5 seconds
As is obvious the time difference is quite phenomenal!

"Transfer rate of 5200 cps"

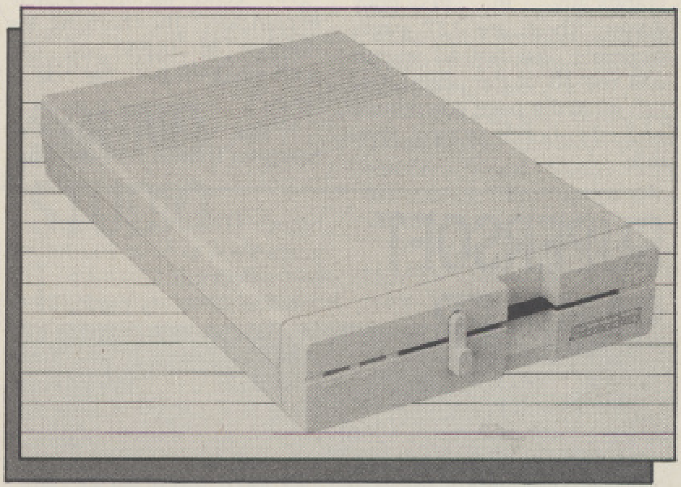
The 1571 can also read CP/M files – essential for use with the 128 – in which the maximum transfer rate is also 5200 characters per second.

Although only available as a single drive at the moment, up to four 1571's can be linked together – although to copy from one to the other's you will need the DOS utilities disk, which will become available through Commodore, though other companies will undoubtedly also release equivalents. Eventually, however, Commodore might release a twin model which is at the moment under development.

Overall the 1571 is an amazing forward leap by Commodore and has shown that it is possible to use the serial port for high speed data transfer – a fact which some of us were beginning to doubt!

Francis Jago

CCI



...THE CBM 1571...

The Art of Making Music

Paul Hardcastle's hit record '19' stayed at the top of the music charts for many weeks. This month CCI looks at two new samplers which enable you to make recordings with effects similar to '19', along with a range of other new music products for your 64

Commodore sampler

Using a sampler, it is possible to produce many of the effects heard on the latest records with the use of digitally recorded sound played back in a variety of ways by the computer. This is done by recording music, words or other sounds through a microphone, which can then be altered and played

Commodore's Sampler package includes software, a microphone, an add-on cartridge which plugs into the 64's user port, and a user manual – all for just £69.95.

Once you have set the system up, any sound can be recorded and played back over a 10-octave range.

A Show function enables you to see what you have said graphically in frequency waves. There are 127 pages available, but not all sounds will use all of the pages. You can go to the page you require and edit sounds using a joystick.

An Echo facility is self-explanatory! By changing the number of bytes you can increase/decrease the delay time.

If you want to sound like Margaret Thatcher or even Minnie Mouse, you can fulfil this ambition with the Harmoniser function. Record your own voice and then play it back with a higher or lower voice.

Four-part sound is a possibility with sampler to keyboard sampling displayed in four parts. Keys QWER are used for playback – a nice logical choice of positioning.

The inclusion of a MIDI interface means that any MIDI-equipped instruments can be interfaced, on another computer.

In use, options are chosen using function keys. It is easy to get to grips with and, with a little imagination, some interesting results can be achieved.

Four pre-recorded sounds are included in the software (these hadn't been finalised at the time we looked at this pre-production model). You can also save any of your own sounds.

Commodore is aiming the Sampler at the beginner who is interested in electronic music, and this package is an excellent introduction to sampling. It can also be used with Commodore's Music Maker to produce your own hit records!

Contact: Commodore, 1 Hunters Lane, Weldon, Corby, N Hants. Tel: 0536 205555.

SUPERSOFT SAMPLER

At a price of £230, Supersoft is aiming its Sampler at an audience seriously interested in fully exploiting the musical capabilities of their 64.

It is a very impressive package. The accompanying software includes a number of pre-recorded sounds which kept the CCI offices amused for hours. (The Suzie Giggle is guaranteed to have you rolling on the floor!).

In the sampling mode, there are functions to sample and playback what you have recorded. A trigger level can be set to eliminate outside interference – so the microphone is only triggered off when you start talking and not by background noise.

Other features are compounding, sample rate – here you can vary the length of time you have to input a sound.

The waveform editor features some very impressive graphics displaying waveforms. This is the section where the fun really starts.

Using the function keys you can set start and end flags where desired on the waveform. Then you can choose to reverse the sound, shift it to another position, reflect a section, or loop for a continuous sound.

A voice handler protects up to 16 samplings in memory which can be played by any MIDI instrument via the MIDI option.

Saving sounds to disk is simple and the program can also be operated via a joystick.

When the novelty of playing around with strange sounds has worn off (if it does), you will discover a powerful tool for some interesting results. Incidentally if you would like a further endorsement, musician Feargal Sharkey now owns one of Supersoft's Samplers.

Contact: Supersoft, Winchester House, Canning Road, Harrow. Tel: 01-861 1166.

SYNTRON DIGIDRUM

The Syntron Digidrum is a low-cost drum-computer which interfaces with the 64. The package, which retails at £65, consists of the digital drum interface, the program on disk or cassette, and a manual.

The interface is connected into the user port. An audio out standard female jack plug connects into audio out on your TV/monitor or amplifier. Also provided is a trigger-out standard female cinch plug offering the possibility of connecting equipment with a trigger-input.

On loading the software, the menu appears showing:

P Program rhythm track
R Rythm line compose (song)
T Tempo adjust
L Load rhythm tracks + rhythm line
S Save rhythm tracks + rhythm line

Digidrum is very easy to operate. A set of preprogrammed rhythms are included. In programming mode, rhythm track 0 automatically appears. Pressing R followed by the number of your choice enables you to work with other rhythms.

A range of instruments are available corresponding logically with various keys, for example C for crash cymbal or S for snare drum. (Other sounds will soon be available on separate disks for around £7.) As you choose each instrument, its symbol appears on the screen.

In rhythm line compose mode, you can compose songs consisting of different rhythm tracks. Normally 10 rhythms are available, but it is possible to combine as many as the computer's memory allows.

Aimed at the home computer user with an interest in music, the Syntron Digidrum is a product that can be quickly understood, producing interesting and effective results. The best results are achieved if you play back through better quality speakers than the average monitor or TV.

Incidentally, the £65 includes membership to a user-base with a quarterly newspaper.

Contact: Syndromic Music, Vince Hill Associates, 35a Grove Avenue, London N10 2AS. Tel: 01-883 1335.

VOICE-MASTER

Voicemaster consists of a small aluminium box which plugs into the rear joystick port of the 64 and a head set with one earphone and a microphone which can be positioned via a swivel joint. A DIN plug connects the unit to the computer via the audio/video port, and a second lead is for use with a video monitor.

Costing £59.95, Voicemaster offers you three functions: speech synthesis, word recognition, and composing and performing music in real time.

Unlike other speech synthesisers which manufacture speech from allophones, Voice master stores and then plays back sounds in the same way as the two samplers reviewed here. Indeed, this is digital sampling.

On the speech synthesising side, you record by typing in Learn and a number between 1 and 64 (this numbers refers to a word or phrase). On pressing return the computer waits for your word, records as you speak and stops recording when you stop speaking. Type Speak followed by your chosen number, and the computer repeats your word.

A better quality of speech can be achieved by increasing the number of samples of sound taken per second (Basic commands listed in the manual explain this procedure), but this will cost you in terms of memory. Special effects such as echoes can be achieved using the Speed and Volume controls.

The word recognition facility uses a similar technique. This samples a word again and again so that the word can be remembered and acted upon. You can save voice recognition data to disk or cassette.

Voiceharp is a function which enables you to hum or whistle a tune and have the computer hum or whistle the tune back to you, or print it out on a musical stave. Unfortunately this section of the program was not available on our reviewing sample, but it sounds very exciting.

You'll have hours of fun experimenting with Voicemaster and budding games authors will be pleased to hear that once you have digitised your words, the results can be saved and played back on any 64 without the hardware.

Contact: Anirog, 29 West Hill, Dartford, Kent DA1 2EL. Tel: 0332 92513.

MAKE MUSIC

One of Mastertronic's £1.99 range of products, Make Music With Mistertronic is a simple program allowing you to compose and playback tunes.

On loading, the screen shows (from top to bottom) a choice of instruments, notes of varying lengths and a scale.

The program is easy to use. Using cursor keys or a joystick for all movements, you choose a note, position it on the scale, choose an instrument and select Playback to hear the tune you have created.

If the tune is too long to fit on one page, the next page is automatically printed up to seven pages.

You can select Delete for incorrect notes or F1 to start again.

Tunes can be saved and loaded easily and, if you have a Commodore printer with graphics capabilities, you can print out your tune.

It is a very basic program. No musical tuition is given and of the choice of instruments, only the recorder sounded like the real thing, but for just £1.99 you can't complain.

Mastertronic say the program is suitable for six-year-olds (with guidance) upwards. It's a fun program for beginners.

Contact: Mastertronic, Park Lorne, 111 Park Road, London NW8 7JL. Tel: 01-486 3478.

SOUND STUDIO

The second new music package from Commodore is the Sound Studio. This program claims to turn the 64 into a professional music synthesiser and multi-track recording studio. CCI had a sneak look at a pre-production version and we were certainly impressed with what we saw.

The manual which is to accompany Sound Studio was written by David Crombie, an expert in the field of electronic musical instruments. Again we didn't see the finished article, but it looks like being one of the most comprehensive manuals CCI has yet to see, explaining in detail about synthesis and sound.

Back to the program itself, which is made up of two parts: synthesiser and multi-track recording studio.

On entering the synthesiser section, a control panel is shown on screen. Notes can be entered via the keyboard or using the Music Maker overlay.

Clear graphical representations enable you to set and change features such as envelopes, filters and other fundamentals.

The multi-track recording facility enables you to create complete multi-track compositions with three separate voices from the Sound Studio. It is also possible to control up to three external synthesisers via the MIDI card.

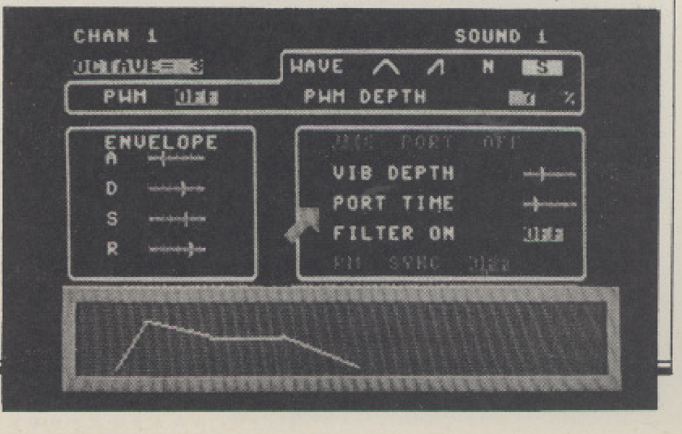
Music can be loaded into the Sound Studio's multi-track recorder in either step time or real time.

Once you have made a recording, it is very easy to make changes using the editing facilities.

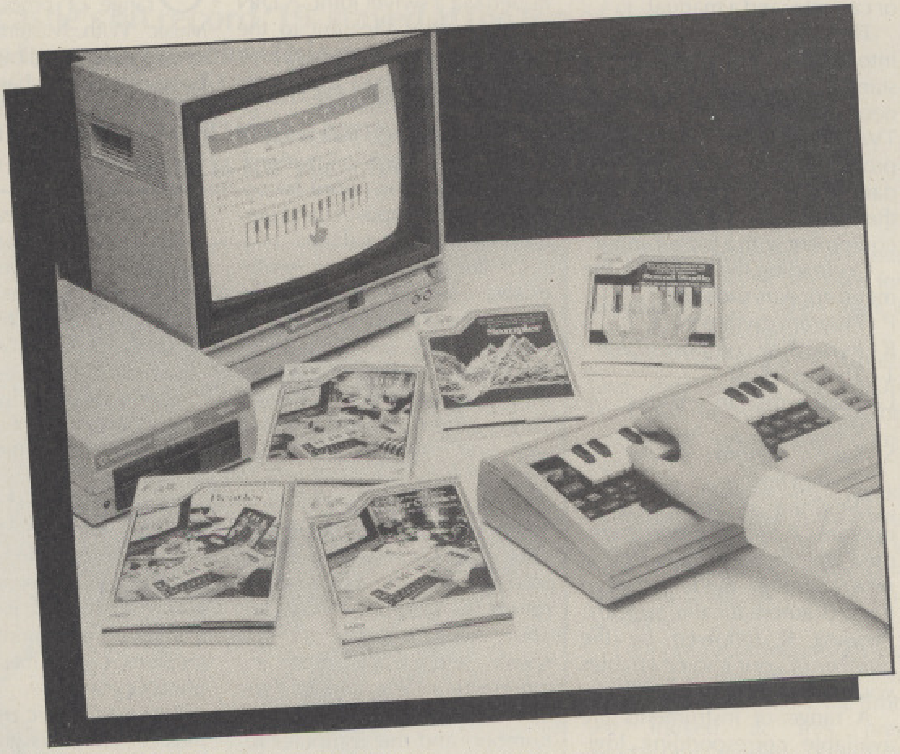
Like all Commodore music products, Sound Studio is really very easy to use.

At a price of just £14.95, and taking the manual into consideration, Sound Studio is a worthwhile buy for anyone with an interest in music.

Contact: Commodore, 1 Hunters Lane, Weldon, N Hants. Tel: 0537 205555.



Win a Sampler and much more



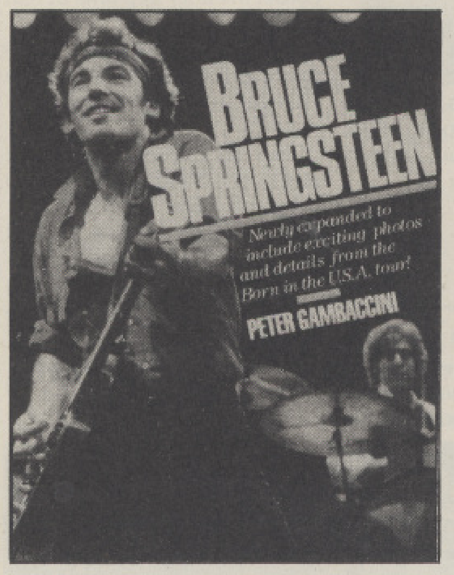
Here's your chance to follow in Paul 'n-n-n-Nineteen' Hardcastle footsteps!

CCI and Music Sales are giving away a free Commodore Sampler to this month's first prize winner, along with Sound Studio packages and other musical goodies to runners up.

The Commodore Sampler and Sound Studio (both reviewed in this issue) are two of the latest additions to Commodore's range of music products, made for the company by Music Sales.

Commodore's Sampler is a hardware and software package which turns the 64 into a low-cost sampling unit. With it, the user can record any sound and play it back over a 10-octave range; alter recorded sounds; store four sounds in memory; play sounds over the top of the computer's SID chip or any MIDI equipped keyboard; and achieve echo effects with variable delay time.

Sound Studio turns the 64 into a professional synthesiser and multi-track sequencer. With it, the user can operate on-screen synthesiser controls; with the aid of graphic displays of the controls create sounds by altering wave forms; build up recordings, edit, effect sound changes for playback by using a step or real time recording; use the MIDI mode to connect into a synthesiser or portable keyboard with MIDI facility to play back or record.


BRUCE SPRINGSTEEN
Newly expanded to include exciting photos and details from the Born in the U.S.A. tour!
PETER GAMBACCINI

The Competition

The Sampler enables you to make recordings with effects similar to Paul Hardcastle's latest hit record '19'.

Remember '19 not out' by the Commentators? Well, if you had a Commodore Sampler what spoof version would you make? For example, 'Number 10 by the Thatchers' or '57 by Heinz'!!

The Prizes

1st prize: The Commodore Sampler.
2nd prize: A Sound Studio each for the next two best entries.
Runners-up: Ten copies of Peter Gambaccini's new book 'Bruce Springsteen' – and up-to-date record of The Boss himself.

All entries must be in the office by 6 September 1985. Our winners will be the most original and witty entries received (please keep it clean!). Judges will include members of CCI and Music Sales. Entries should be sent to:

Sampler Competition,
Commodore Computing International,
Finsbury Business Centre,
40 Bowling Green Lane,
London EC1R ONE

If I had a Commodore Sampler, my spoof version of '19' would be: ______________________

Your name: ______________________

Address: ______________________

____

(If you want to keep the magazine intact, send us a photocopy of the completed competition page).

BORED WITH SHOOT 'EM UP SPACE INVADERS?

then it's time to

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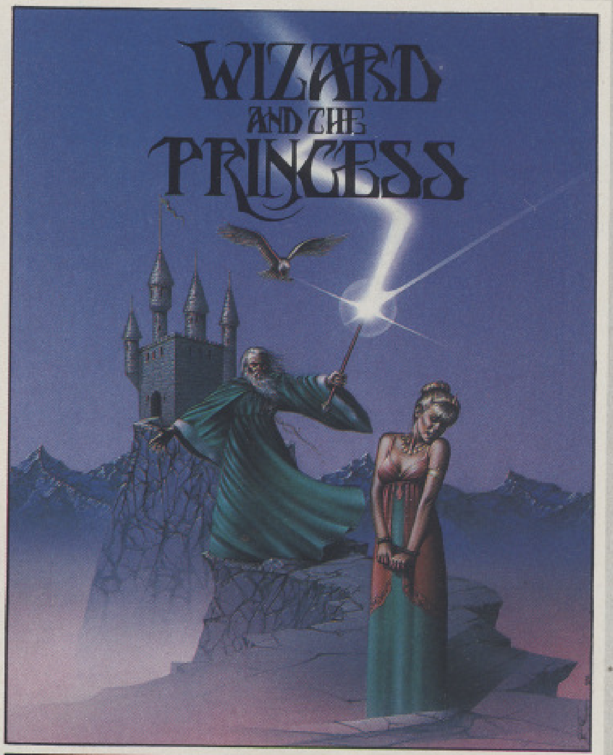
Enter the world of computer adventure. Each adventure takes several weeks to master, providing hours of fascination and intrigue. You must use your imagination and logic to unlock the mysteries of each adventure. Map skills are essential since each Sierra adventure contains over a hundred full-colour computer generated images which lead you in every direction. You'll need to muster up all your wit and logic and perseverance for each Sierra adventure will prove a test to your imagination and ingenuity. . .



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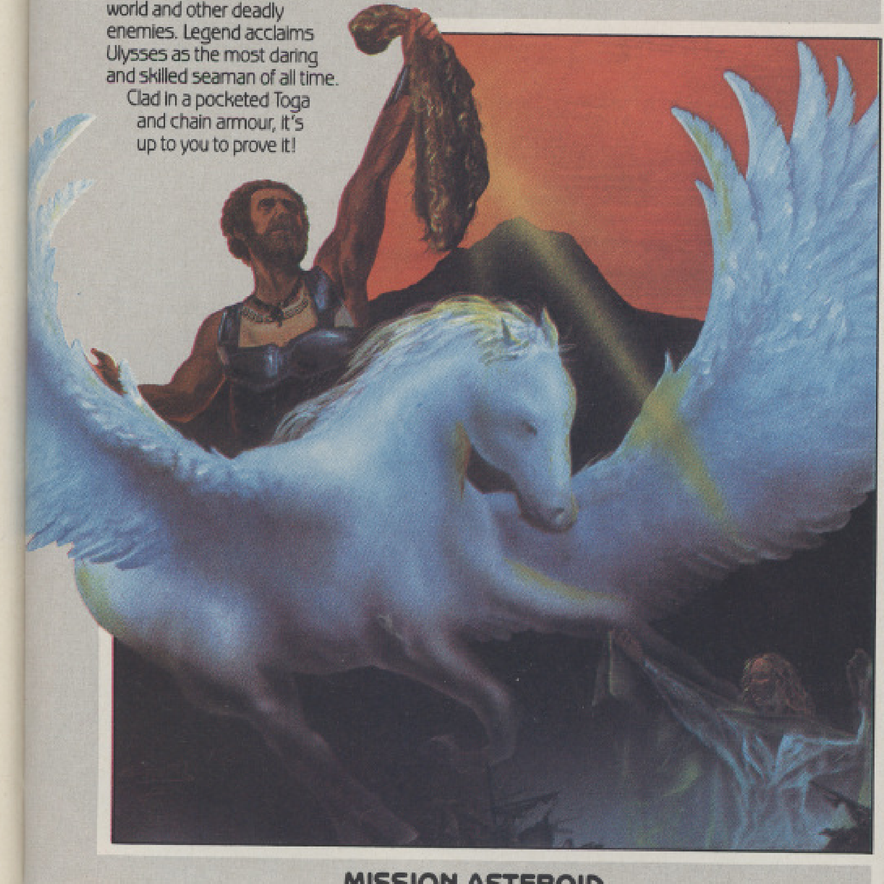

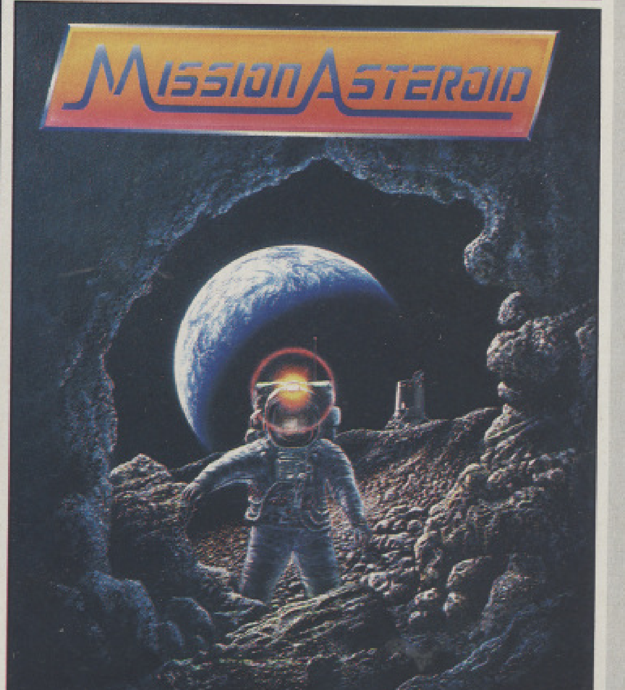

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ARCVE

Adventure enthusiasts, often speaking from camps outside ominous magic castles and wielding a magic scroll or two, maintain that theirs is the only true test of imagination and skill, bringing into play such talents as lateral (sneaky) thinking and a wide vocabulary. The truly dedicated Adventurer is likely even to pour scorn on such modern developments as the graphic adventure, claiming that illustrating the text on screen merely hampers the full flow of the imagination. Even the program which brought the majority of home computer owners the joys of complex adventuring – The Hobbit from Melbourne House – had its detractors on that score.

Arcade enthusiasts, however, state that with the extraordinary graphics and sound capabilities of most home computers nowadays, it is a criminal waste just to fill the screen with words. As Pacman and its maze-clones gave way to Miner '49er and its "platform" clones, the cult of the joystick and the high-score table became firmly entrenched. Increasingly sophisticated scrolling graphics and sound effects (such as the stunning musical score of Activision's Ghostbusters) all added to the enjoyment, but the main attraction remained the idea of beating everyone else with a mega-score of aliens zapped, bags of gold collected, bombs defused or whatever.

There was, until fairly recently, virtually no point of common contact between the two camps. The Adventurers would point scornfully to the joystick-wielders and accuse them of lack of imagination and brainpower. The Arcaders would bat the scorn straight back and suggest that the opposition partly just couldn't muster the lightening reflexes and split-second decision-making abilities needed for their own speciality.

Now a new half-way house has emerged with the aim of attracting afficionados of both extremes of computer gaming. A mixture of the two genres, to varying extents, it goes by the general name of the arcade adventure or, for the sake of brevity, arcventure.

The essence of an arcventure is that the player must combine both reasoning skills and swift reflexes to complete the game. One of the first such packages on this side of the Atlantic was probably Eureka!, which was also the first program here to offer a straightforward prize of a large wad of banknotes to the first to complete all the puzzles.

Since Eureka! was an early arcventure, its format does look a little crude today. Essentially it consisted of a series of mini-adventures, all in different locations and eras and each leading onto the next. But, after completing each adventure, the player had to work through a mini-arcade game in order to gain sufficient stamina to last through the next quest. Flunk the arcade games, and your chances of winning the £5,000 ranged from low to nil. Even so, it was still possible to play all the

ENTURE

adventures without braving the arcade sections, something which developments of the arcventure have made all but impossible with the latest programs.

In a way arcventures, or at least the best of them, are aiming to stretch the gaming capacity of the home micro to its limits. Maximum use is made of all capabilities and, by the same token, the players also find that they are using their faculties to the utmost.

Matters progressed considerably when Ultimate Play the Game came out with their Staff of Karnath program. This was the first quest of the dauntless Sir Arthur Pendragon "ace adventurer and researcher into ancient legends and sorcery" who is following the ever-popular pursuit of trying to save the world from all-consuming Evil.

Good old Arthur has to find the various pieces of the eponymous Staff, put them together and, finally, destroy the whole ensemble before the worst happens. To do that he has to explore traditional adventure territory, in the form of a much-booby trapped castle and solve various puzzles. The difference between this game and most of what came before is that the hero is manipulated without the player typing a word to the screen.

For in Staff of Karnath all controls are via the joystick, which manipulates an animated cartoon Sir Arthur around the castle and helps him to fight off sundry gruesome foes ranging from witches to giant toads.

Sir Arthur went on, in very similar style, to have a crack at Egyptian relics in the successor program Entombed, which gives both a somewhat more complex scenario and some very-high quality background graphics although the animation looks much the same. And by that time other UK companies had entered the field.

One of the more intriguing of these was Legend, which took the idea of a fully animated arcventure still further with Valhalla.

This laid claim to being the first equivalent of the computerised movie, and it could justify the claim in that all the characters were animated and it was perfectly possible just to sit and watch them amble, fight and sneak their way across the screen without doing anything yourself at all.

In Valhalla the hero had to travel through the halls of Norse mythology seeking particular treasures. The screen was divided into three sections, the graphics at the top, with your character and others responding to your input, the middle section told you where you were and what items were available and the lower section was for you to type your instructions. The graphics were not sensational, but they were good and the animation and scrolling together with the adventure element sparked off a new phase for the arcventure.

"Jet Set Willy marries the Hobbit"

Gargoyle games developed an extraordinary program which still takes a lot of beating in the graphics department. It was called Tir Na Nog and is notable both for the excellence of its programming and for the fact that (perhaps a more dubious credit) it entirely eliminated the need for typing instructions.

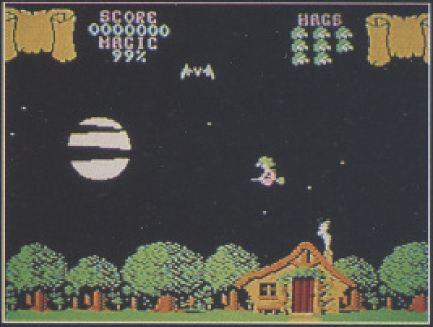
Tir Na Nog portrayed its hero, a long-haired Celtic superman, with stunning detail and remarkable animation as he strode through the mythic Land of Youth, showing the scenery from different perspectives as he moved around guided by the joystick. He could pick up objects by passing over them and use weapons with the aid of the joystick and fire button. It was a visual tour de force, but was it really an adventure?

Adventures and arcventures are two fields where UK programming has been able to put up a fairly good showing against the transatlantic competition, but the fact remains that there are more games, some of them astonishingly good, available from the other side of the Atlantic. The one American game which may have done more than anything else to alert games players to the possibilities of the arcventure came from Epyx, already well-established in the field of role-playing adventure games (see following reviews) and went on sale here earlier this year.

The game is Impossible Mission and at first glance it looks like just another platform game. At second and all subsequent glances it becomes clear that it is to the normal platform game what the Tabernacle Choir is to the local glee club. The hero, Agent 4125, is one of the best pieces of animation ever to hit my VDU, with an impressive running movement, accompanied by authentic footfall sound effects, and a somersault which would ensure him a place in any Olympic athletics team.

The beauties of Impossible Mission are the puzzles, which really are fiendish, the amazing graphics and, last but by no means least, the sound which defies all description.

The trend for the future is clearly increasingly away from the idea of inputting text from the keyboard, a development I view with some regret even when faced with new generation of icon-driven games, which may yet fall into a category of their own, such as the eminently playable Shadowfire from Beyond. The likes of Shadowfire, using a joystick to select which character acts next and then choosing various options from a series of menus, encourage an entirely new way of thinking of adventures, in terms of actions and visual effect rather than in terms of working out proper instructions. There is something to be said for not having to try the same command in several different formats before the program will accept it, but I think that at least one dimension to adventuring, or arcventuring, is being lost with the increasing redundancy of the keyboard.



And there is another aspect to consider. For those who, like me, concentrate on adventure games because we have nasty, devius minds for figuring out problems but can be beaten hollow on the likes of Elite by the average lightening-reflexed arcade-addicted ten-year-old, it is a little alarming to see the influx of amazing new games which we may never be able to complete successfully by ourselves because of the increasing arcade elements.

Barbara Conway

GAME OF THE MONTH....

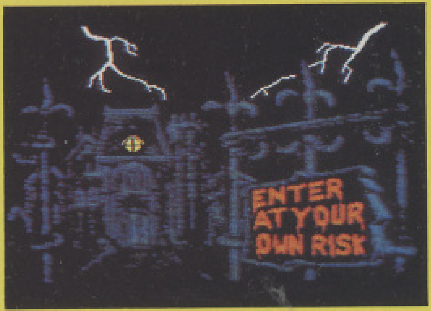
CRL's Rocky Horror Show met with enthusiastic response from members of the CCI Readers Panel

"Hey Games fans! Dig this groovy number. Gasp at the graphics, groove to the music and be amazed at the addictiveness! Yes it's the 'Rocky Horror Show' and what a show it is"

This is the enthusiastic response of John Archer, 14, of Ashbourne, to our latest Game of the month. It's the same feeling which grabbed the youth of England when the film was released in the seventies.

As Carl Coffey, 17, of Longfield says "It's one of those games, you either love, or you hate it, either way, you'll have to admire the great character set, nicely drawn sprites and toe-tapping music"

RHS's programmer, Andy Stoddard, has stuck as closely as possible to the original storyline as Neil Edwards, 15, of Bexleyheath, describes.



"The game starts with you choosing whether you want to be Brad or Janet. Your partner is then captured by Frankie (a mad scientist from outer space) and taken back to his space ship, which is disguised as a Mansion. You have to rescue your partner by retrieving pices of a machine to reverse the process which your partner is undergoing".

Although this game is definitely not another shoot-em-up it seemed to go down very well as all our panel commented on the outstanding graphics and sound.

Once you have begun your quest you come upon many hazards as Tim Burke of Manchester points out. "The first enemies are vampires and witches who spout irrelevant messages in speech bubbles. Contact with one particular witch results in you being stripped of your clothing, and you can't continue until they are found! The next is a Hunchback who meanders around the screen with a killer spring. The most lethal, though, and most humorous, are the motorbikes which zoom around the mansion thinking nothing of trampling you to death between their wheels."

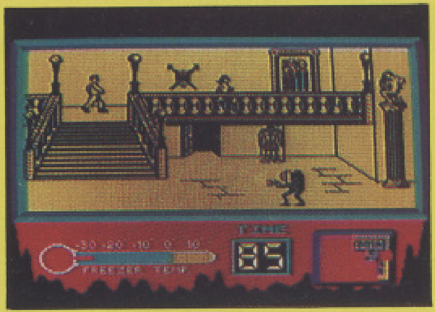
One of the problems which everybody commented on was the minimal instructions received with the game but as John Archer puts it: "this small fault detracts little from the game itself."

So far RHS might sound like a run of the mill easy, arcade adventure – Paul Serbert, 22, of Harrogate dispells this thought by stating: "You have only about ten minutes to complete your task and Frankie and company are very awkward to avoid. It is the furious and difficult race against time which gives the game its considerable addictive qualities."

One comment which other software houses might pay attention to was from Julien Francois, 16, of London who said: "The free poster and car sticker quickly found themselves honourable places, as they were both worth having. The packaging was nice and for the price, home copying wouldn't be worthwhile as the extras are only available with original copies!"

The annoying side of RHS was obvious even to the first time player, as you only have one life, and no weapons to protect yourself from the evils that lurk deep within the castle walls. This was pointed out when Neil Edwards said: "It is rather frustrating when you only have one piece to collect and then you get run down by a motorbike"

What seemed to endear our panel to the game most, however, was the little graphical touches such as well drawn pictures on the wall and prominently placed statues. It is things like this which show how much time and care was put into the programming of RHS, as without them it would have undoubtedly been relegated to the 'one play and bin' games.



CONCLUSIONS

"The RHS is a palate tickler for anyone who enjoyed the mad film. The game is literally **a cut above the normal** (or is it a cut above the sane?!)" – Francois.

"Overall this is **one of the most amusing and original games I have ever played.** If you want some wacky, good clean fun (well almost) why not raise the curtain on this show and enjoy a CRL mind flip" – Serbert.

"The graphics are beautifully detailed, complete with gothic architecture, the music is funky and eminently listenable to, and the size of the castle is large." – Burke.

"The game has that 'just-one-more-go' effect on you and so is **annoyingly addictive,** so you'd better give it a high ranking in your games collection OR ELSE." – Edwards.

"One of the best games ever, **a MUST for any games players.** Sure to become a best seller and possibly a classic." – Archer.

"Nice music and a witty credits section at the end of the game this overall **above average.**" – Coffey.

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LATEST GAMES

It is impossible to list here the full range of recreational software now available for the 64 and many more releases are expected. Here's a list of some of the more recent releases, some of which we have seen rave reviews for (★):

★ 3D Lunattack c7.95 ★ A View To A Kill c10.99 ★ Airwolf c7.95 ★ Archon ★ Beachead II c9.95 d12.95 ☐Blagger Goes To Hollywood c9.95 d11.95 ★ Bounty Bob Strikes Back c9.95 d14.95 ★ Bruce Lee c9.95 d14.95 ★ Buck Rogers c9.95 d12.95 ☐ BJ's Superstar Challenge c7.95 d12.95 ☐ Castle of Jasoom d12.95 ★ Castle of Terror c9.95 ★ Cauldron c7.99 ★ Caverns Of Sillahc c7.99 ☐ Conan c9.95 d14.94 ☐ Confuzion c7.95 ★ Dambusters c11.95 d14.95 ☐ Dig Dug c9.95 d14.95 ☐ Drop Zone c9.95 ★ Elite c14.95 ★ Entombed c9.95 ★ Everyone's A Wally c9.95 ☐ Frak c8.95 ★ Gandalph The Scorceror c9.95 d14.95 ☐ Gates of Dawn c8.95 ★ Ghostbusters c10.95 ★ Give My Regards to Broadway c7.99 ☐ Grand Larceny c7.95 ☐ Grand National c7.95 ★ Gremlins c7.95 ☐ Gribblys Day Out c7.95 ★ Grogs Revenge c9.95 d14.95 ☐ Gryphon c7.95 ★ Guardian + Son Of Blagger + Aztech Tomb + Haunted House + Loco c9.95 d11.95 ☐ Hunchback At The Olympics c5.95 ★ Hypercircuit c7.95 d11.95 ★ Ice Palace c7.95 ★ Impossible Mission c8.95 d11.95 ★ International Basketball c5.99 ☐ J Barrington's Squash c7.95 ★ Lode Runner c9.95 d12.95 ☐ Lords Of Midnight c9.95 ☐ Master Of The Lamps c14.99 d19.99 ★ Minder c9.95 ☐ Mr Do c9.95 d14.95 ☐ Murder On The Zinderneuf c11.95 ★ M.U.L.E. c11.95 ☐ Nutcracker c5.95 ★ On-Court Tennis c10.99 d19.99 ★ On-Field Baseball c10.99 d19.00 ★ On-Field Football (US) c10.99 d19.99 ☐ Operation Whirlwind c11.95 d14.95 ★ Pastfinder c9.99 ★ Pitstop II c10.95 d13.95 ★ Pyschedelia c7.50 ☐ Quasimodo c9.95 ☐ Realms of Impossibility c9.95 ★ Rock 'n Bolt c10.95 ★ Rocket Roger c7.95 ☐ Romper Room C9.95 ★ Seaside Special c6.90 ★ Shadowfire c9.95 ☐ Slap Shot c8.95 ☐ Space Shuttle c9.99 ★ Spelunker c9.95 ★ Spitfire 40 c9.95 ★ Spy v Spy c9.95 ★ Spy Hunter c9.95 d12.95 ☐ StarFire/FireOne c8.95 ★ Steller 7 c9.95 d12.95 ★ Strangeloop c8.95 ☐ Stringer c6.95 ★ Super Huey C8.95 ★ Super Pipeline 2 c9.95 ☐ Super Gran c9.95 ★ Tapper c9.95 d12.95 ★ The Hobbit (update + sound) d17.95 ★ Theatre Europe c9.95 d12.95 ★ Tir Na Nog c9.95 ★ Ultima III c9.95 ☐ Web Dimension c14.99 d19.99 ★ World Series Baseball c7.95.

PLUS-4/C16

☐ 3D Time Trek c6.95 ☐ Air Combat Emulator c9.95 ☐ Automic Mission r11.99 ☐ Berks c6.95 ☐ Berks 3 c6.95 ☐ Blagger c6.95 ☐ Canoe Slalom c6.95 ☐ Catacombs c6.95 ☐ Circus c7.95 ☐ Classic Adventure c5.95 ☐ Cuthbert In The Tombs Of Doom c6.95 ☐ Cuthbert In Space c6.95 ☐ Dark Tower c5.95 ☐ Dork's Dilemma c6.95 ☐ Escape From Pulsar 7 c7.95 ☐ Flight Zero One Five c5.95 ☐ Flightpath 737 c6.95 ☐ Gremlins c7.95 ☐ Harbour Attack c5.99 ☐ Hulk c7.95 ☐ Jack Attack r14.99 ☐ Las Vegas c6.95 ☐ Major Blink c6.95 ☐ Mansion Adventure c6.95 ☐ Mayhem c5.99 ☐ Minipedes c6.95 ☐ Olympiad c6.95 ☐ Olympic Skier c5.95 ☐ Out On A Limb c6.95 ☐ Pacmania c5.95 ☐ Petals of Doom c6.95 ☐ Petch c6.95 ☐ Pirate Adventure r11.99 ☐ Pottit c6.95 ☐ Psychedelia c6.95 ☐ Purple Turtles c5.99 ☐ Rig Attack c6.95 ☐ Roller Kong c5.95 ☐ Sandcastle & Paramaths c5.99 ☐ Scramble c6.95 ☐ Slippery Sid c6.95 ☐ Sorceror Of Claymorgue Castle c7.95 ☐ Spiderman c7.95 ☐ Star Commander c6.95 ☐ Strange Odyssey r11.99 ☐ SuperGran c6.95 ☐ Sword of Destiny c6.95 ☐ Ten Little Indians c7.95 ☐ Time Machine c7.95 ☐ Tycoon Tex c6.95 ☐ Viduzzles r11.99 ☐ Wizard & Princess c5.95 ☐ Xargon Wars c6.95 ☐ Zap-Em c6.95 ☐ Zodiac c6.95 ☐ Zork I, II and III each c11.99 (Plus-4 only).

PC RECREATIONAL

A very large range of software is available for the IBM-compatible Commodore PC and others of this genre, including a surprising amount of recreational material. The extent of business and utility software is awesome – and we are able to supply much of this at rock bottom prices! So if youknow what you're after – see what we can do for you! Send for a full time list now! But here are some of the recreational and home-use products:

■ Amazon d41.00 ■ Ancient Art Of War d43.00 ■ Another Bow (Sherlock Holmes d42.00 ■ Asylum d35.00 ☐ Backgammon d49.00 ■ Bank Street Writer d75.00 ■ Baron d57.00 ☐ Battle For Normandy d39.00 ■ B-1 Nuclear Bomber d20.00 ■ Chess (Odesta) d69.00 ■ Complete Scarsdale Diet d42.00 ■ Computer Diplomacy d48.00 ■ Crisis Mountain d34.00 ■ Cut-Throats d39.00 ■ Dark Crystal d33.00 ■ Deadline d49.00 ■ Death In The Caribbean d34.00 ■ Dragonworld d41.00 ■ Enchanter d49.00 ■ Frogger d33.00 ■ F-15 Strike Eagle d34.00 ■ Flight Simulator d75.00 ■ Gato d39.00 ■ Hellcat Ace d29.00 ■ Hitchhikers Guide To The Galaxy d39.00 ■ Home Accountant d145.00 ■ Homeword Filer d95.00 ■ Infidel d49.00 ■ Kings Quest II d43.00 ■ Lode Runner d34.00 ■ Micro Cookbook d39.00 ■ Midway Campaign d20.00 ■ Mig Alley Ace d34.00 ■ Millionaire d57.00 ■ Mind Prober d48.00 ■ Net Worth d75.00 ■ Night Mission Pinball d39.00 ■ NATO Commander 3 d34.00 ■ Personal Investor d135.00 ■ Pitstop II d38.00 ■ Planetfall d49.00 ■ Rendezvous With Rama d41.00 ■ Rogue d30.00 ■ Sargon III d49.00 ■ Seastalker d39.00 ■ Serpentine d34.00 ■ Shadowkeep d41.00 ■ Solo Flight d34.00 ■ Sorceror d49.00 ■ Spitfire Ace d29.00 ■ Spy Hunter d43.00 ■ Squire d57.00 ■ Star Trek d43.00 ■ Starcross d39.00 ■ Suspect d49.00 ■ Suspended d49.00 ■ The Heist d39.00 ■ The Trivia Arcade d33.00 ■ Tigers In The Snow d39.00 ■ Trivia Fever d39.00 ■ Trivia Savant d49.00 ■ Tycoon d57.00 ■ Ultima II d63.00 ■ Ultima III d57.00 ■ Ulysses & Golden Fleece d34.00 ■ Witness d49.00 ■ Wizardry I d57.00 ■ Word Challenge d38.00 ■ Zork I d39.00 ■ Zork II d39.00 ■ Zork III d39.00

Superbase **64** *Superbase* **STARTER** *Superscript* *Super* **TYPE**

If there is one program that ought to accompany any 64 it's Superbase 64 – and just look at the special promotional price below. And, in case you're wondering: this is new stock obtained direct from Precision, not 'old' warehouse supplies. Superbase is just about usable in any capacity – hobbies to business (we use it for all our accounting and customer records). Now there's a pruned-down non-programmable version. Superbase Starter, it's affordable by all.

For Wordprocessing, we're extremely impressed by the new Superscript 64, which really does compare well with our long-time favourite Paperclip. There's no doubt that these are the two best programs of their type for the 64. And if you want to learn touch-typing, SuperType is unquestionably the best of all the self-instruction typing tutors we have seen, completing a hatrick of excellent products from Precision.

Superscript (d67.50) incorporates an extendable 30,000 spell-check facility, has a very useful five-function calculator feature for column, row or table figure work, and represents state-of-the-art development from its natural predecessors, EasyScript and EasySpell. One main difference from Easyscript and Paperclip is word-wrap.

	Our Normal Price	PROMOTION
SUPERBASE 64	£80.00	**£75.00**
SUPERBASE STARTER	£35.00	**£33.00**
SUPERSCRIPT	£67.00	**£65.00**
SUPERTYPE disk	£22.00	**£20.00**
cassette	£17.95	—
SUPERBASE + SUPERSCRIPT	£152.50	**£135.00**

The combination of the last two – and what an offer! can be used as an integrated office system on the C128, and versions of the programs for this computer are now available.

OTHER RECOMMENDATIONS

Paperclip (d75.00) is comparable to Superscript, but differs in having an 80-column display preview mode, a very useful column sort facility — great for indexes or alphanumerically sorted lists. Like Superscript it has an extensive range of printer files — or you can create your own. So any printer — parallel or serial — may be used.

For financial and numerical modelling a spreadsheet is extremely useful and PractiCalc II (d67.50) is the best we've seen *on any home computer:* 80-column entry display, wp capability, sort, search — the lot. Details available (SAE). Calc Result (r95.00) is an excellent alternative if you can make use of its multiple page facility.

Of the program development tools, JCL's HS-64 Assembler Development System (d+r55.00 or deluxe version r67.50) and Supersoft's Mikro Assembler (r55.00) are both highly recommended to the advance user. Further details available (SAE please).

In case anyone ever though otherwise, the C64 — and obviously the C128 — are well geared to business use if lightning speeds and mega memories are not required (although there are ways round this!). Some of the software is truly exceptional (Superbase!) and is genuinely much easier to use than some of the 'big boy' stuff. If you're thinging of serious uses for your C64 or C128 — and not sure what software (or hardware) you need — write to us with an indication of your requirements. But there's not a lot that can't be achieved with this **SPECIAL OFFER: Super base + Superscript + PractiCalc II for £195.00.**

KEEP THIS AD SOMEWHERE HANDY!

VISA

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NEW GAMES RELEASES

ARCADE

Chickin' Chase, Estra, Subsunk and **The Helm,** (£2.50 cassette), all for 64 from Firebird Software, Wellington House, Upper St Martin's Lane, London WC2H 9DL. Tel: 01-379 6755.

Rupert And The Toymaker's Party, (£7.99 cassette), for 64 from Argus Press Software Ltd, Liberty House, 222 Regent Street, London W1R 7DB. Tel: 01-439 0666.

Thing On A Spring, (£7.95 cassette), for the 64 from Gremlin Graphics Software Ltd, Alpha House, 10 Carver Street, Sheffield S1 4FS. Tel: 0742 753423.

Ulysses and the Golden Fleece, Lucifers Realm, Drop Zone and **Doughboy,** (£9.95 cassette, £14.95 disk), for 64 from US Gold Ltd, Unit 10, The Parkway Industrial Centre, Heneage Street, Birmingham B7 4LY. Tel: 021-359 8881.

Super Gran, (£9.95 cassette for 64 or C16), from Tynesoft Computer Software, Addison Industrial Estate, Blaydon, Tyne & Wear NE21 4ZE. Tel: 091-414 4611.

SIMULATION

Beach Head II, Solo Flight II and **Blue Max 2001,** (£9.95 cassette, £14.95 disk for 64), from US Gold, Unit 10, Parkway Industrial Estate, Heneage Street, Birmingham B7 4LY. Tel: 021-359 3020.

ADVENTURE

Super Gran — The Adventure, (£9.95 cassette for 64, £7.95 cassette for C16), from Tynesoft Computer Software, Addison Industrial Estate, Blaydon, Tyne & Wear NE21 4ZE. Tel: 091-414 4611.

Mordon's Quest, (£6.95 cassette), from Melbourne House, Castle Yard House, Castle Yard, Richmond TW10 6TF. Tel: 940 6064.

MISCELLANEOUS

Canoe Slalom, (£6.95 cassette), from Tynesoft Computer Software, Addison Industrial Estate, Blaydon, Tyne & Wear NE21 4ZE. Tel: 091-414 4611.

Sky Fox, (£9.95 cassette, £12.95 disk), flight and combat simulation for 64 and C128 by Electronic Arts from Ariolasoft UK Ltd, Ashphelte House, Palace Street, London SW1. Tel: 01-834 8507.

Monster Trivia, (£9.95 cassette, £14.95 disk), for 64 by Cosmi from US Gold Ltd, Unit 10, The Parkway Industrial Centre, Heneage Street, Birmingham B7 4LY. Tel: 021-359 8881.

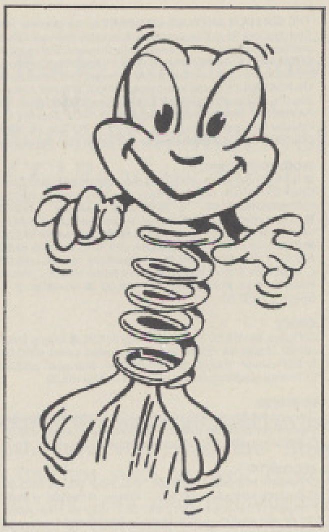
The Boss, (£6.95 cassette), football management game for C16 from Peaksoft, 48 Queen Street, Balderton, Neward, Notts NG24 3NS. Tel: 0636 705230.

Wizardry, (£9.95 cassette, £12.95 disk), 3D graphics adventure in Dungeons and Dragons realm for the 64 from The Edge, 12-13 Henrietta Street, London WC2. Tel: 01-240 1422.

Recoil in delight!!

Also released recently is the latest title from Gremlin Graphics, entitled Thing on a Spring. It involves bouncing your way around an underground factory collecting items which will then help you to overthrow the Evil Goblin. As well as the usual high quality graphics 'Thing' has some very snappy musical accompaniment (£7.95).

Contact: Gremlin Graphics, Alpha House, 10, Carver Street, Sheffield, S1 4FS. Tel: 0742 753423.



The bear essentials

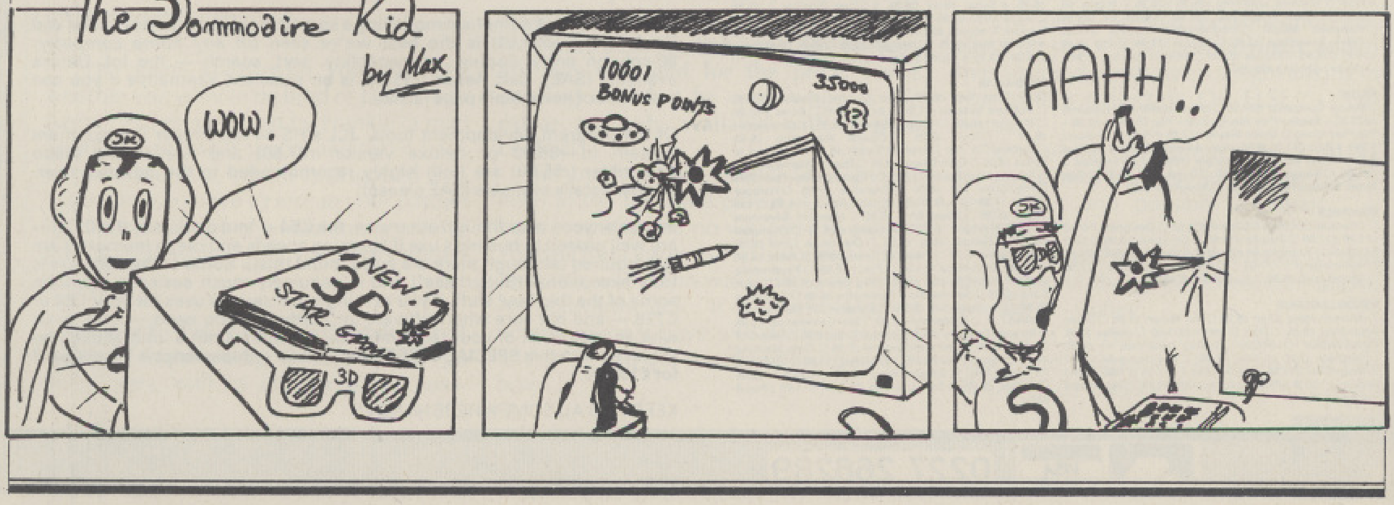
Due for release at the end of July from Argus Press is Rupert and the Toymaker's Party. Placing you in the character of Rupert, you must walk and jump your way through eight differing levels, collecting a trail of invitations left by your friends, who decided, as friends do, to desert you! The game starts in the grounds, and you must work your way up to the room where the party is. Along the way you will have to avoid all sorts of toys that do their best to slow your progress. £7.99.

Contact: Argus Press Software, Liberty House, 222 Regent Street, London W1R 7DB. Tel: 01-439 0666.

Don't skip this one!!

A new release from Mastertronic is the Action Biker/Clumsy Colin game, released in conjunction with KP Skips crisps. The game places you in the role of 'Clumsy Colin' on a motorcycle. Using the joystick you must navigate your way around a course and collect various items to improve your bike. These include Crash Helmets, Riding Leathers, and a Turbocharger. £1.99.

Contact: Mastertronic, Park Lorne, 111 Park Road, London NW8 7JL. Tel: 01-486 3478.



Autumn brings Gold rush

US Gold is readying itself for the launch of several new games this autumn from American software house Datasoft.

The first will be Zorro, based on the popular character that has been the subject of books, films and comic strips since he was created by Johnston McCulley in 1919. The computer game Zorro will be set on Olvera Street in a much older Los Angeles (1800s) and follows the basic hero-rescues-maiden plot. Among other exciting feats of heroism, Zorro chases the evil Sergeant Garcia's soldiers, leaps from rooftops and trampolines from one floor to another. The game is set for a September launch.

In October, Pole Position II appears as the follow-up to one of the most successful racing simulations on the 64. It's a Formula I race and features a choice of four tracks of increasing difficulty. A special feature allows the player to design his own track.

In the same month TAITO's Elavator Action is released, also by US Gold, putting the player in the role of Agent Otto, a spy who has to retrieve secret documents from a top security building. Whilst doing this he will have to dodge enemy spies who try to kill him once he has left the security of the elavator. Finally he has to dash to his car and from there to safety.

Later in the year US Gold will be introducing The Goonies, based on the latest Steven Spielberg film creation. Calling it "action-strategy", Datasoft says each screen will be "an elaborate Rube Goldberg type maze with eight screens of increasing difficulty."

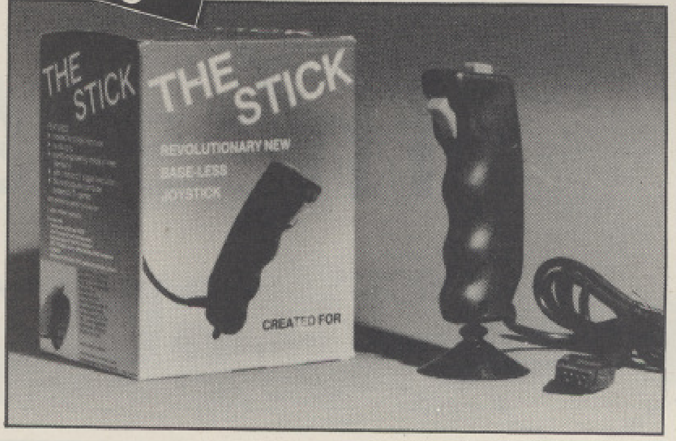
Each of these games fall into US Gold's standard price of £9.95 cassette, £14.95 disk.

November brings an interesting sounding offer — Alternate Reality (though US Gold seems to think the title is Alternative Reality). Datasoft describes it as "a fantasy role-playing game in which the player has been abducted by an alien spacecraft and transported to another time and place."

The first setting is The City (not to be confused with the financial hub of London). The strategy type plot has the player trying to earn money and get food and sleep to see him through the crisis. The City is the first and only essential element in the seven-game Alternate Reality series, the others having titles like The Dungeon, The Arena and Destiny.

Game play is by a combination of keyboard and joystick and the programs will be on disk only at a price of £19.95 incl VAT.

Contact: US Gold Ltd, Unit 10, Parkway Industrial Estate, Heneage Street, Birmingham B7 4LY. Tel: 021-359 3020.



Give them a hand!!

New on the joystick market is 'The Stick'. Specifically designed for one handed use, it means one hand is free for using any keys, a great help for the more complicated flight simulation games.

Using a standard 9 pin 'D' type connector, means easy connection to the 64 and Vic. For games where quick movement is required (Decathlon etc) it eliminates the possibility of broken shafts (£12.99).

Contact: Lightwave Leisure Limited, 2, Maldwyn Road, Liscard, Wirrel, Merseyside L44 1AL. Tel: 051-639 5050.

CCI High-score winners

The following people won games competitions held on the CCI stand at the Commodore show, by getting the highest score on the specified games over the show's three days. Each receive bundled software to the value of £50.

Eagle Empire by Alligata – Pedro Mora, London NW2.

Boulderdash by Statesoft – Benji Dale, Loughborough, Leicestershire.

Arena by Microdeal – Ian Saxby, Dagenham, Essex.

Dropzone by US Gold – Andrew Osbourne, Greenford, Middlesex.

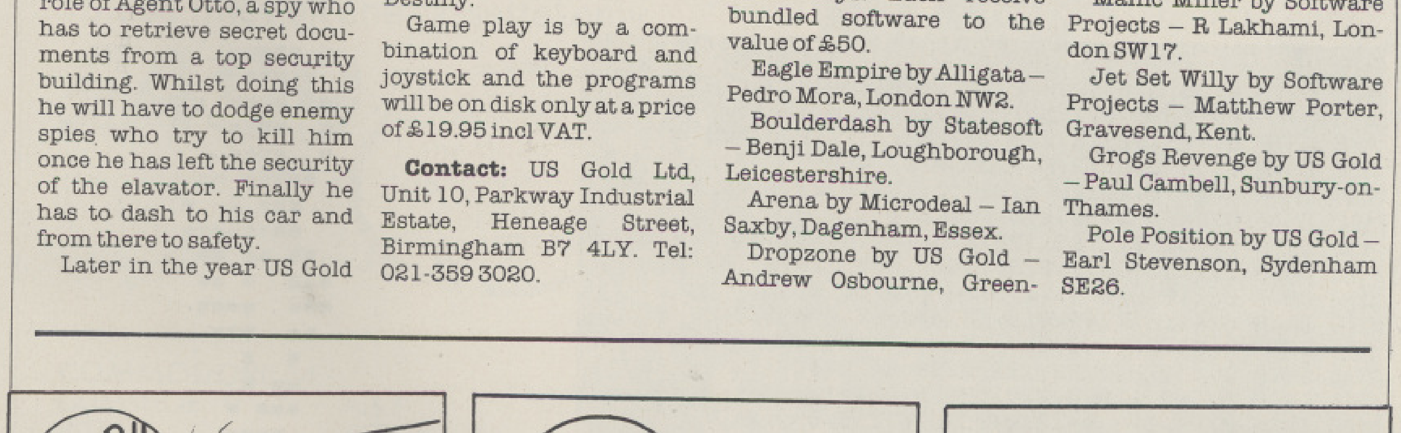
Rocky Horror Show by CRL – Joint winners Lee Cowan, Manchester and Richard McCarthy London W9.

Manic Miner by Software Projects – R Lakhami, London SW17.

Jet Set Willy by Software Projects – Matthew Porter, Gravesend, Kent.

Grogs Revenge by US Gold – Paul Cambell, Sunbury-on-Thames.

Pole Position by US Gold – Earl Stevenson, Sydenham SE26.


HELP!!
?
3D
?
3500!
LOONY!!

The spaceman cometh

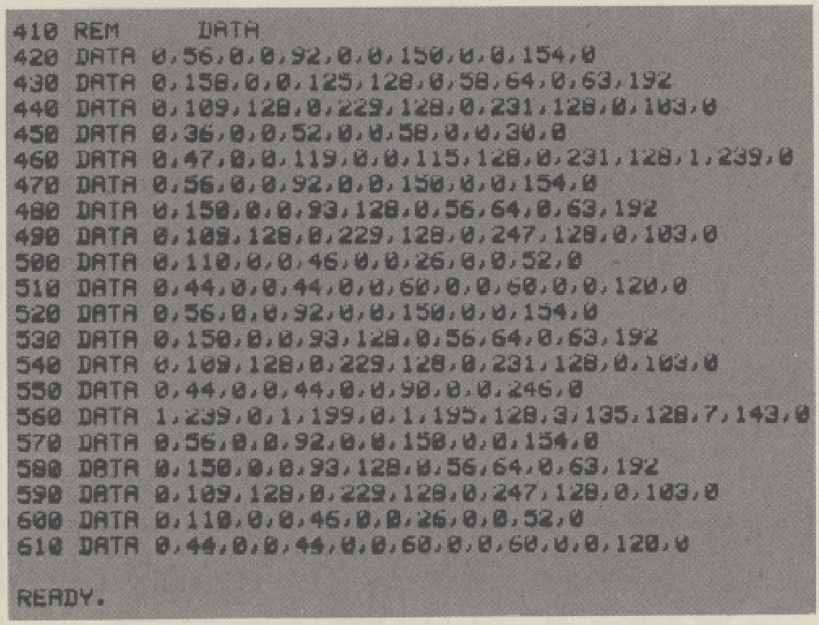
Continuing our theme of 'sprite running', this month Tony Mangnall and Timi Dabor provide a new set of sprites to be incorporated into the KEYBOARD/JOYSTICK control routine published last month.

Here we have a new 'character' to add to your sprite library. If you substitute the new DATA statements that are listed on this page, for the DATA statements in the 'Exterminator' program listing (CCI August), you will see an astronaut, or rather four sprite images of the astronaut, mirrored in exactly the same way as our last set of images.

Again, whilst the data conversion is taking place there will be a short delay, and remember that this delay can be avoided in subsequent 'runs' of the program by adding, :GOTO190 to LINE 70.

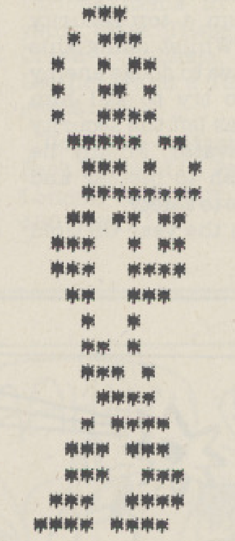
On closer scrutiny of the new DATA statements, sharp-eyed readers will notice that two of the sprite images are identical: the reason for this is to maintain a smooth movement and a correctness of step within the animation sequence. There are three sprites numbered 0, 1 and 2. The way they are presented in the DATA listing is as follows:–

1- SPRITE 1 – LINES 420, 430, 440, 450, 460
2- SPRITE 0 – LINES 470, 480, 490, 500, 510
3- SPRITE 2 – LINES 520, 530, 540, 550, 560
4- SPRITE 0 – LINES 570, 580, 590, 600, 610



```
410 REM     DATA
420 DATA 0,56,0,0,92,0,0,150,0,0,154,0
430 DATA 0,158,0,0,125,128,0,58,64,0,63,192
440 DATA 0,109,128,0,229,128,0,231,128,0,103,0
450 DATA 0,36,0,0,52,0,0,58,0,0,30,0
460 DATA 0,47,0,0,119,0,0,115,128,0,231,128,1,239,0
470 DATA 0,56,0,0,92,0,0,150,0,0,154,0
480 DATA 0,150,0,0,93,128,0,56,64,0,63,192
490 DATA 0,109,128,0,229,128,0,247,128,0,103,0
500 DATA 0,110,0,0,46,0,0,26,0,0,52,0
510 DATA 0,44,0,0,44,0,0,60,0,0,60,0,0,120,0
520 DATA 0,56,0,0,92,0,0,150,0,0,154,0
530 DATA 0,150,0,0,93,128,0,56,64,0,63,192
540 DATA 0,109,128,0,229,128,0,231,128,0,103,0
550 DATA 0,44,0,0,44,0,0,90,0,0,246,0
560 DATA 1,239,0,1,199,0,1,195,128,3,135,128,7,143,0
570 DATA 0,56,0,0,92,0,0,150,0,0,154,0
580 DATA 0,150,0,0,93,128,0,56,64,0,63,192
590 DATA 0,109,128,0,229,128,0,247,128,0,103,0
600 DATA 0,110,0,0,46,0,0,26,0,0,52,0
610 DATA 0,44,0,0,44,0,0,60,0,0,60,0,0,120,0

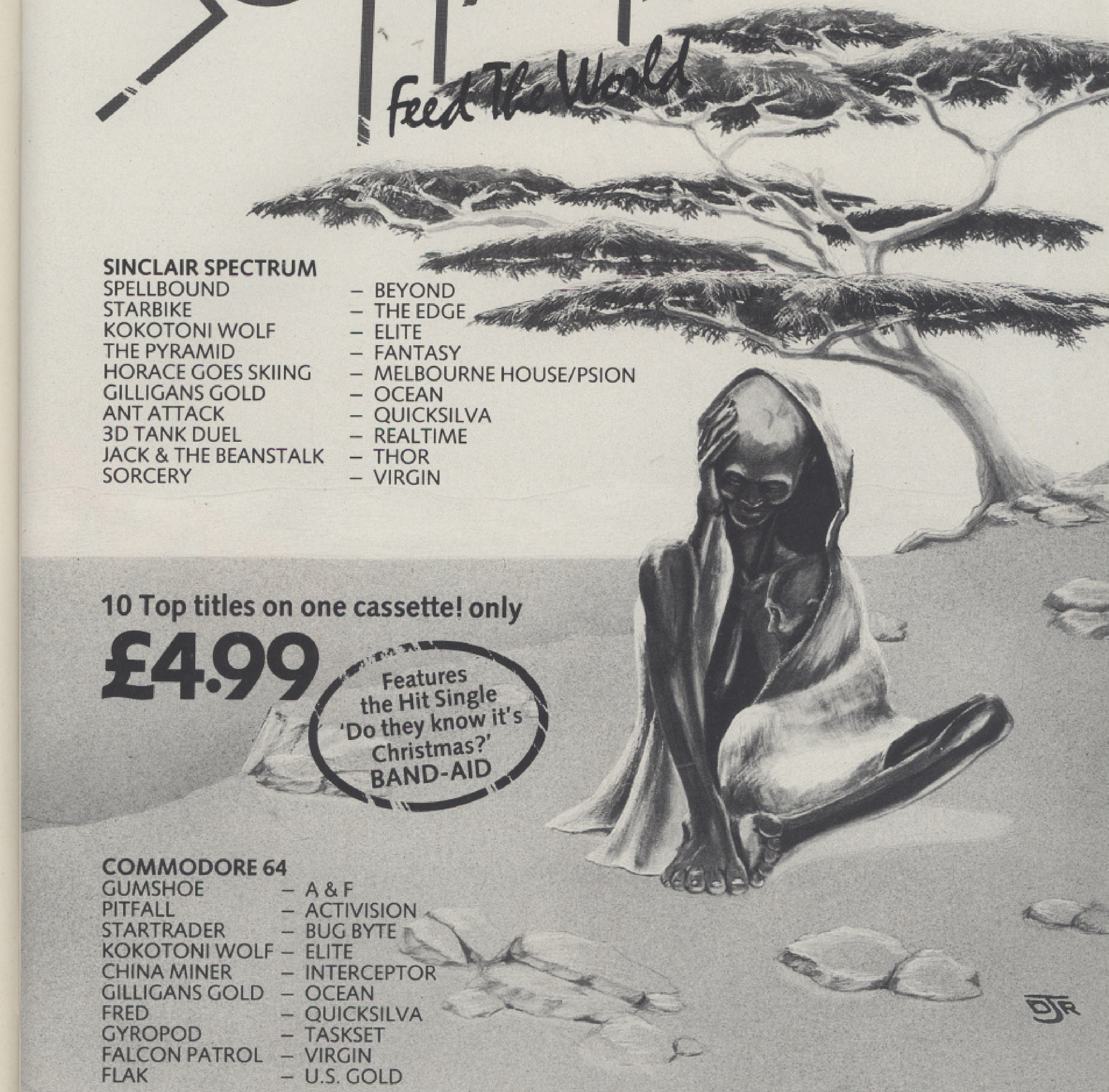
READY.
```



'THE ASTRONAUT'

SOFTAID

Feed The World



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ANT ATTACK	QUICKSILVA
3D TANK DUEL	REALTIME
JACK & THE BEANSTALK	THOR
SORCERY	VIRGIN

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GYROPOD	TASKSET
FALCON PATROL	VIRGIN
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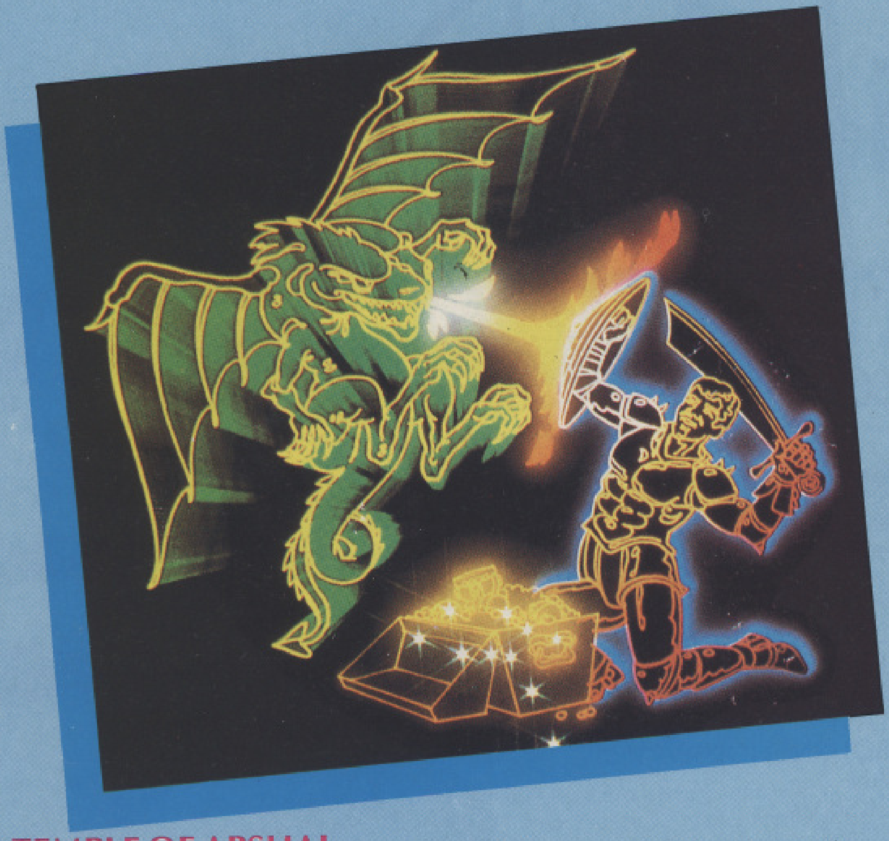

SORCERY

This is the game which caused almost as much excitement for Amstrad users as did Elite when it first came out for the BBC, and I'm happy to report that it's lost none of its extraordinary appeal in its translation to the CBM64. The only slight surprise is that the Sorcery graphics look identical to the original on this new version. Admittedly they were superb anyway, but I had expected some slight changes to take advantage of the CBM's special capabilities.

But this is mere carping. You start the game as the last of the Great Sorcerors, and your aim is to reach Stonehenge to defeat the Evil Necromancer. Being a sorceror you can, of course, fly, but there are all manner of nasties lined up to stop you getting to your goal and, although you can pick up various useful items en route, you can only carry one at a time. As you soon find out, items such as the sword are only

TEMPLE OF APSHAI

This isn't exactly a new game, since it has been well-established in the United States for several years, but the Epyx role-playing adventure games have, until the marketing arrangement with US Gold, been too expensive as imports to have much mass appeal in the UK.

Temple of Apshai is part of a series of RPGs and you'll need to take a look at the hefty accompanying booklet if you intend to survive more than a moment in the game itself. There are four levels, each of them a complex web of rooms with a variety of hazards and treasures, including booby-traps.

But before you even enter the levels (incidentally, there's none of this nonsense about great causes in Apshai — the ultimate aim is simply to accumulate lots of lovely loot) you must bargain with the Innkeeper for such essentials as weapons and armour. The Innkeeper is the equivalent of an RPG Dungeonmaster and will also supply a first-time player with a character with randomly chosen levels of strength, dexterity, etc.

Once in the levels, of the temple (you can select which level to start at), the screen shows the room or corridor, the simply-drawn hero and any nasties which happen to be lurking there. Fighting can be a little too random for my taste, but for the fearless adventurer there is plenty of treasure to be acquired and a vast terrain to be covered.

Temple comes on both tape and disk, but I'd recommend the disk version since there are various accesses which would take too long from cassette. **An absorbing game for a time, but I'm not sure that it could keep my attention for much more than a few weeks.**

Price: £9.95 (cassette), £14.95 (disk).
Company: US Gold, Unit 10 Parkway Industrial Estate, Heneage Street, Birmingham B7 4LY. Tel: 021-359 3020.

TASKMASTER

There you are in love with the beautiful Princess Kelly (?) but her father King Otto seems to be pretty unsympathetic to young love and demands that you win her by undertaking seven deadly missions to cleanse the land of sundry nasties. Being a love-smitted sap, you agree and go forth to start your tasks at the Valley of the Zombies.

Deadly they may be, but I can't say that I found the tasks all that interesting. For the most part they involve straightforward zapping of various not-too-impressive animated opponents, with each setpiece taking place in one screen with no scrolling. Zombies, wizards and vampires all figure in the plot, culminating in a grand finale in the Castle of the Birdman, which I haven't reached yet.

An adequate shoot-'em-up game, but, after zapping through the first few tasks, **only true love is likely to make you bother to go on to the end.**

Price: £2.50
Company: Creative Sparks, Thomson House, 296 Farnborough Road, Farnborough, Hants GU14 7NU. Tel: 0252 543333.

Exploring the m
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ARCVEN

Review b

GHETTO-BLASTER

This, claims Virgin in typically flamboyant mood, is the "first rock musical written for computer" and, although it looks unlikely to get into the pop music top ten, it could easily provoke a spate of boogying in front of the TV screen.

The hero is Rockin' Rodney, a hopeful lad who is trying to make good as a messenger for a record company in Funky Town. Carrying his ghetto-blaster, Rod must collect 10 demo tapes from all over town and deliver them to HQ, while also fulfilling a mission to turn on as many citizens as possible to the wonders of rock music with the aid of said ghetto-blaster.

The graphics, which chart Rodney's course along each street of the town, are of very high quality, as is the animation as useful against material foes. The supernatural needs other remedies.

There are 17 screens, but if that doesn't sound much just wait until you try them. **Animation is quite simply marvellous, smooth and often very amusing.** Encountering demons, ghosts etc will diminish your energy and could kill you before your time limit unless you figure out the extremely silly way to replenish your forces. Lovely stuff.

Price: £8.95

Company: Virgin Games, 2-4 Vernon Yard, London W11 2DX. Tel: 01-727 8070.

e mysterious and
hole playground of the

ENTURE WORLD

eview by Barbara Conway

you maneouvre him into houses looking for the tapes and around the bewildered citizenry who are enticed into "dance trances" by the music. You must also keep the ghetto-blaster well supplied with batteries and learn who to avoid. The police, for example, show distinct signs of over-reaction if you're playing the 'blaster too loud and certain citizens, such as the Tone-Deaf Walkers, can be violent if not neutralised.

Graphics are in the "Ghostbusters" class, and the sound is very nearly in the same league.

Price: £8.95

Company: Virgin Games, 2-4 Vernon Yard, London W11 2DX. Tel: 01-727 8070.

LANDS OF HAVOC

Tired of playing the standard handsome young hero(ine)? Then why not follow the "Sabre Wulf"-type route in Microdeal's latest game and give up being a human being at all in favour of being an equally valorous giant reptile.

As Sador, the mysterious lizard warrior, you must try to restore the ancient and once-peaceful land of Haven to its former glories, after sundry Dark Lords have succeeded in turning it into the Land of Havoc. Aided by nine maps of Haven, you must first find three essential items in the land itself (look for a very useful Book first) before descending to the lower level (unmapped) to find and defeat the Lords themselves.

Sador, who looks a little like a tyrannosaurus from a side view, and his many foes fight across 81 screens in Haven and many more in the underworld. The main skills needed are of the arcade variety, since Sador has either to dodge or zap his opponents in every screen, with the objects which can be used against the invaders the main concession to adventure.

The graphics are nothing special (it isn't always easy to figure out what kind of foe you're fighting) and the principle of the game is the old-established maze format with extra wrinkles. **A good arcade game, but only a so-so arcventure.**

Price: £6.95

Company: Microdeal, 41 Truro Road, St Austell, Cornwall PL25 5JE. Tel: 0726 65407.

HERBERT'S DUMMY RUN

Who's a right little Herbert then? You are, when playing this latest game from Mikro-Gen and a very cute little chap you are, to be sure.

This is the latest saga of the family life of Wally Weeks (as in "Everyone's a Wally") and stars Wally and Wilma's son Herbert who has managed to lose his mum and dad in a remarkably large department store. The object is for Herbert to rejoin his parents, who are waiting for him in the Lost and Found department. But it's already 1pm and he must get there before the store closes at 5.30pm.

Herbert, controlled by either joystick or keyboard, is a well-animated toddler wandering (and jumping, climbing, etc) through a wide variety of departments on several floors and picking up items both for solving puzzles and for eating. If Herbert doesn't eat for any length of time then he starts to cry, as shown by a steadily filling teardrop on screen. When the teardrop is full, he loses one of his three lives.

The graphics are excellent, and the introductory theme (a honky-tonk version of "Baby Face") very well done. Some of the puzzles are surprisingly sophisticated and should help to keep adventurers happy, whilst **any arcade enthusiast should get hooked quickly.** Nice one, Herbert.

Price: £9.95

Company: Mikro-Gen, 44 The Broadway, Bracknell, Berks. Tel: 0344 427317.

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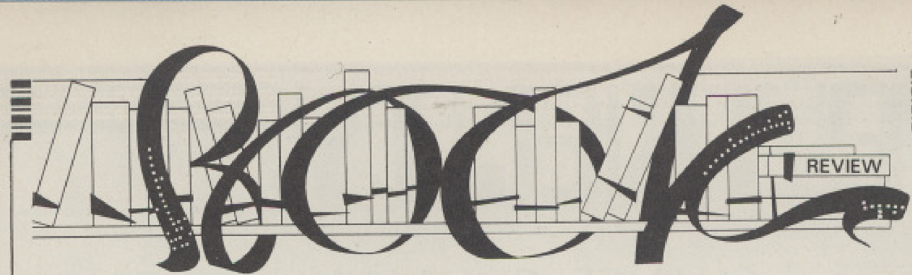

Computer journalist Peter Arnott-Job evaluates a selection of newly-released computer books.

GET MORE FROM THE EPSON PRINTER by Susan Curran — £7.95

This was actually published at the beginning of 1985 but such has been the pressure on these review pages that this has been the first opportunity to say anything about it. Apologies to anyone with an Epson printer because you could have spent the last few months using this book. If it's any consolation this reviewer has an Epson printer and this is the first opportunity that I've had to take a good look at the book.

I was bitterly disappointed. Ever since I bought my Epson FX-80 I've been acutely aware of the lack of literature about printers. I had hoped to make a few shillings by producing a modest tome of my own but Susan Curran has beaten me to it. If you've got an Epson printer, buy this book.

There's no doubt that Epson printers deserve their position as brand leaders in the market place. They may be dot matrix but that means they're fast. Besides, I don't mind if the people I write to know I own a computer. The fuss made about daisy wheel printers is based on snobbery. If you can read the print-out easily that's surely enough.

The book covers seven Epson printers: the P-40, P-80, RX-80, RX-100, FX-80, FX100 and JX-80. More to the point for readers of this magazine it also covers Commodore machines. The programs included in the book for Commodore computers were written on a Commodore 64 but should work on other Commodore machines.

For the beginner, using a printer can be a very confusing business but the author simplifies it as much as possible, referring to specific machines wherever relevant. It is only slightly irritating to find so many references to other machines and other printers but nowhere else could you find as much information about *your* computer and *your* printer. The book covers everything from interfacing printer and computer to using special typestyles and user-defined characters.

The only disappointing aspect of the book is that although it contains information about EasyScript, Perfect Writer and Wordstar, amongst others, it says nothing about Vizawrite or Paperclip, arguably the two best word-processing packages for the 64.

Contact: Collins Professional and Technical Books, 8 Grafton Street, London W1.

COMMODORE WARGAMING by Owen Bishop and Audrey Bishop – £8.95

One of the biggest problems for a reviewer of computer books is that you have to cover such a wide range of subjects. The trouble is that computer books aren't necessarily about computers but about what you can do with computers. This covers a lot of ground — from trivial and useless applications that hardly deserve to be called applications to the serious and, sometimes literally, lifesaving applications. Just because you know something about computers doesn't mean to say you know something about everything a computer can do.

I have played war games in the past and it's easy to see how wargaming can become something of an obsession. Although that doesn't qualify me to make the definitive judgement about this book I think I can safely say that wargamers with a 64 (or wargamers thinking of buying one) and 64 users who fancy a shot at wargaming will find this an excellent buy.

At the heart of the book is a collection of routines for use in wargames. It covers board games, where the armed forces are represented by counters, and model war games which use model soldiers (don't dare call them toys!).

Commodore 64 Wargaming ought to please everyone from the hobbyists whose real pleasure is as much in creating their own models as in playing the games, to those whose pleasure is in tactics and strategy. The participation of the 64 in the game can be minimal – it can be used only to calculate losses – or the whole game can be played on the screen.

The routines are not too long or too complex and those who are not interested in programming can simply key them in. They are presented in such a way that enthusiastic programmers can adapt them to suit their own purposes.

The routines are used in three complete games included in the book, a medieval, a World War Two and a science fiction wargame. It's well written, remarkably jargon-free and enjoyable to read even if you're neither an obsessive wargamer or a dedicated programmer.

Contact: Collins Professional and Technical Books, 8 Grafton Street, London W1X 3LA. Tel: 01-493 7070.

THE BYTES BROTHERS GO TO A GETAWAY and THE BYTES BROTHERS RECORD A ROBBERY by Lois and Floyd McCoy — £1.25 each

The Famous Five Find Fortran, Children of the New Technology, Noddy Discovers Unix . . . all a bit silly isn't it? The Bytes Brothers aren't quite as silly but they still lack anything like a streetful of credibility.

The idea is that computers are nasty, like medicine, and they need a spoonful of sugar to make them digestible. The message seems to be: "Here's something horrible and unpleasant so let's dress it up in a tight pair of jeans and perhaps people won't notice the unpleasantness."

These are children's books in the Solve-It-Yourself Computer Mysteries from Armada, the children's books imprint of Fontana Paperbacks. The heroes of the books are brothers Brent and Barry Bytes. They are in their early teens and they're bright young lads. They have a computer they call Nibble which is probably not a Commodore 64 or a Vic 20 . . . or any other Commodore machine. The Basic that Nibble uses is definitely not a Commodore Basic. But the purpose is just to teach the general theory of programming and computers so it still applies. These bright young lads get involved in all sorts of adventures in which Nibble turns out to be very useful.

Every few pages Brent and Barry have to resort to their computer to help them out. You, the reader, have as much information as the brave brothers and you have to try and solve the problem before they do — or rather before you're tempted to turn over the page and look at the answer. You're supposed to use your own computer to help you solve the problems, of course.

It's a nice idea but, unfortunately it doesn't work. The kids that the books are aimed at would be capable of coming up with something better. Not that Lois and Floyd McCoy haven't put a great deal of work into the books. If anything they've put a bit too much work into them. The books are laboured and patronising. The writing is atrocious. What the hell does 'schmoozed' mean? Or 'gronks'? And how about a bit of sexist propaganda as early as possible in a kid's life — "Jennifer snapped her fingers, without even considering the possible destruction of a nail."

Proper literacy must come before computer literacy but unfortunately these are the sort of books that might make kids wonder why they bothered to learn to read at all.

Never mind, one of these days they'll come up with an illiterate computer so you won't even have to bother learning to read to be able to use it.

Contact: Armada Books, Fontana Paperbacks, 8 Grafton Street, London W1. Tel: 01-493 7070.

THE COMPLETE COMMODORE 64 by Dennis Jarrett – £7.95

There must be at least a dozen similar books around. One hesitates to insist that they are aimed at the gullible beginner but there must surely be a great many gullible beginners out there to support so many similar titles.

All these books exploit the poverty of the user's manual that accompanies the computer. They are introductions to the machine which take you up to 'apprentice programmer' level. Each has its own strengths but most have weaknesses that outweigh the strengths.

The Complete Commodore 64 is written by the editor of one of our competitive magazines but that's not what puts me off. I am very much afraid that presentation counts. If I was browsing through the books on the shelves in a bookshop and I saw the out of focus photograph on page 27 and then read the introduction to Chapter 24: "The term 'spreadsheet calculator' may be intimidatingly clumsy term; but it happens to be one that should be part of the vocabulary for anyone interesting in using the 64 seriously in business."

I refuse to criticise it on the grounds that the writer uses a chatty, matey, patronising style that I absolutely loathe because that sort of style seems to be popular amongst computer writers. I can only assume that you book readers out there like that style.

The content is strikingly unoriginal. The core of the book is 85 pages of programming information and it's really not enough to support the other 255 pages. There's an introductory section, a section which looks at cassettes, disks, printers and plotters, a section about (not of) business applications, a 'Resource Directory' (error messages, glossary, further reading etc), a summary of Basic and a memory map.

By the general standards of computer publishing this is not a bad book at all. Compared with many other computer books it's a good, useful one. But what on earth is it about a reputable publishing company like Hutchinson that makes them accept far lower standards in computer books than they would accept in any other subject? I've asked that question several times in this column and not once has a publisher responded with a defence. I'm just waiting for someone to condemn my reviews with the same sort of enthusiasm I put into criticising their books.

Contact: Hutchinson Computer Publishing Co Ltd, Hutchinson House, 17-21 Conway Street, London W1P 6JD. Tel: 01-387 2811.

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Games Arena

THE CHESS GAME

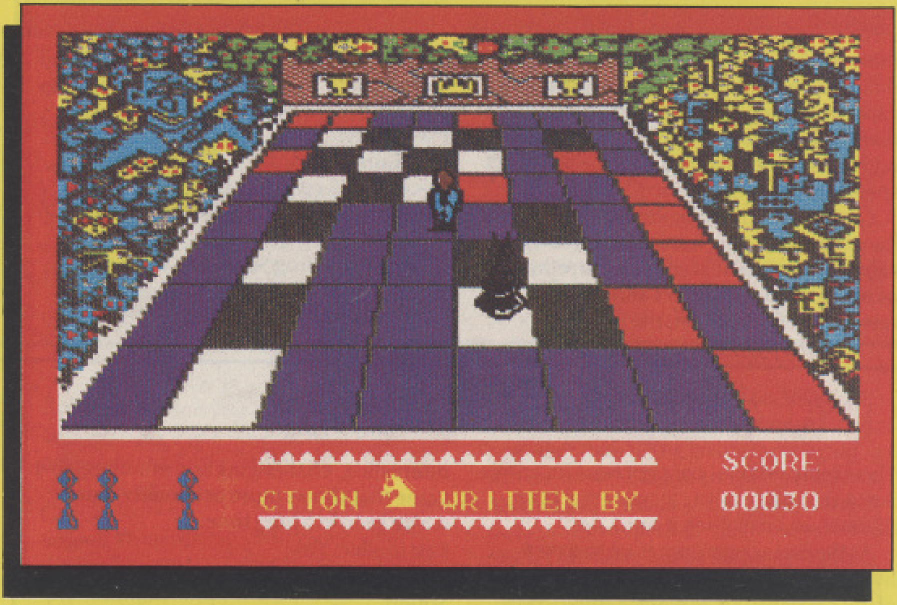
This is a bright, original approach to the ancient game of chess with the player in the role of the pawn rather than one of two players.

Excellent 3D graphics are the first thing that strike you as top notch, but the play and challenge soon follow. The Chess Game is one of those that dares you to discover the rules, which are not set out in instructions. That usually turns me away immediately, but a bit of logic will carry you some of the way through. Beyond that you're on your own.

Frustration sets in as you try to determine a pattern to the changing colours on the chess board. If you touch a certain colour at the wrong time, you're doomed and sometimes just a random fluke such as one of the monsters on the rim of the board gets you in trouble. This is, after all, a nightmare.

Levels are determined by the type of chess piece working against you — one at a time beginning with the knight and moving through the ranks. It is not a chess game but an addictive, well-thought out concept and the high quality of all its elements makes it worth a good go.

Fast loader: Yes
Graphics: *****
Sound: ****
Playability: ****
CCI Rating: ****
Price: £7.95 cassette
Company: Micro Classic, Greenfields, Priory Road, Forest Row, Sussex RH18 5JD. Tel: 0342 822189.



3D ROAM

Those common claims of "arcade action" actually come true in this Handic game, and the combination of sound and three dimensional effect through paper glasses remind one of the hours spent glued to a gallery machine.

This is the third installment in a series by a Swedish programmer, although the other two — Space Action and Space Trap — are not 3D.

Via joystick you conrol a worm-like robot who must destroy dangerous energy particles being injected into the planet Theta-16's atmosphere.

Action is fast and exciting as the robot slithers through space and nasties like blurps whirl in its direction. The blue and red glasses required for the 3D effect aren't bad — quite trendy actually — though you can play without them too.

It would be nice if two could play 3D Roam, but arcade fanatics will have enough on their hands tackling the space creeps.

Fast loader: N/A
Graphics: ****
Sound: ****
Playability: ****
CCI Rating: ****
Price: £14.95 disk only
Company: Handic Software, 5 Albert Road, Crowthorne, Berks RG11 7LT. Tel: 0344 778800.

All games reviews appearing in this magazine are personal opinions and serve only as a guide to new games on the market. Our star ratings for graphics, sound, playability and the CCI rating are as follows:

*** = Poor**
**** = Average**
***** = Good**
****** = Very Good**
******* = Excellent**

THE ANTAGONISTS

The idea of typing in your own adventure program — even over a length of time — is not particularly attractive, but saving money and your own involvement are two factors that may pull it off.

The Antagonists comes from Addison-Wesley Publishers, who also published The Secret Of Arendarvon Castle in the same format — a type-it-yourself adventure. The book is illustrated in black and white with an error-detecting listing at the back, recommended to be typed in over three days. An optional pre-programmed cassette sells for £5.70.

The book serves up essential clues, hints and tips to lead you through the strange land searching for the unidentified object which will lead you out. The program itself is text only, uses simple commands and does not give elaborate descriptions. That is the purpose of the book.

The fantasy world is earth in the year 2356 AD and the antagonists are insects — not a pleasant thought. You must escape, and it takes an attentive, clever mind to do so. Meanwhile, you learn about fantastical plants and creatures and about the life and work of a fictitious scientist named James Arwell. It's story-weaving at its best.

Loading time is about 15 minutes; at least it gives you time to read part of the book. All in all, The Antagonists is **a good story for those who long for the mind challenging work that traditional adventures present** with quality, an excellent, well-written story and long lasting interest.

Fast loader: None
Graphics: Text only
Sound: None
Playability: ****
CCI Rating: *****
Price: £5.95 for book with listing; £5.70 for optional cassette
Company: Addison-Wesley Publishers Ltd, Finchampstead Road, Wokingham, Berks RG11 2NZ. Tel: 0734 794000.

JUMP JET

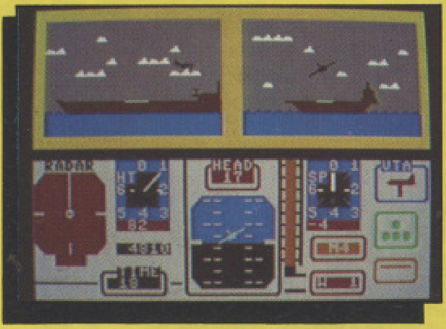
"May Day! May Day! I'm bailing out!"

Well, it was a rather uncertain start and if the computer hadn't said it first, I probably would have. Jump Jet is a well-adorned flight simulation program based on the type of plane that requires no runway for lift-off. It allows simple take off and landing practice up to the more difficult air combat. CCI reviewed the 64 version. C16 and VIC 20 versions are also planned.

The instrument panel is fairly simple and not quite as informative as I would have liked, but enhancements such as speech and sophisticated music are nice perks. Graphics are good and the sea setting makes for unusual cockpit views — rolling (or "thundering") waves rather than a flat green horizon.

Instructions explain the basics of flight, panel controls, combat, etc, but are short on organisation so read them all thoroughly before you start. Levels of difficulty range from practice to group captain, determining the number of warnings you're allowed. Sound effects add to the atmosphere and the impressive speech is startling at critical times.

Control reactions are very good on banking and during battle. **Jump Jet will require as much dexterity and forethought as other flight simulators and still has a few extras.** On take-off, the first view is bird's eye of the carrier and the jet; the second is a split screen side view; and the third is the cockpit view. These change again before battle for a better than real idea of where you are.



It is a good simulation, as it should be since it's written by a jump jet pilot.

Fast loader: Turbo load
Graphics: ****
Sound: *****
Playability: ****
CCI Rating: ****
Price: £9.95 cassette, £11.95 disk for 64 version; £7.95 cassette for VIC 20 and C16 versions.
Company: Anirog Software, Victoria Industrial Park, Victoria Road, Dartford, Kent DA1 5AJ. Tel: 0322 92513/8.

AMAZON WARRIOR

An uninspiring tune is just a taste of the rest of this game, one that had potential but falls desperately short.

The left-right scrolling screen graphics of the jungle look good until you realise there are only three basic screens. Two other phases include caverns and a ruined temple, neither more inspiring than the first.

The character is very well animated but reminds one strikingly of the hero in Aztec Challenge in his hair, clothes (or lack thereof) and smooth running movement. He carries a blowpipe to defend himself against nasty creatures like snakes and spiders, but they don't show themselves unless he pauses in his path, so you could go on indefinitely and never accomplish anything.

It is such basic carelessness that made me cringe. It doesn't even bother with a bit of sound for shooting darts. **Generally, Amazon Warrior is simply unfinished.**

Fast loader: Novaload
Graphics: ***
Sound: *
Playability: **
CCI Rating: **
Price: £7.95 cassette
Company: New Generation Software, The Brooklands, Sunny bank, Lyncombe Vale, Bath 0225 316924.

CONFUZION

This highly original concept from Incentive Software falls into no category that I can think of, so I'm calling it a puzzle.

As the first screen comes up to a very lively, original tune (included on the back of the cassette too), you see a square box with trails in various arrangements across it leading from one edge to another. You move a small black pallet to block portions of the arrangement to force a spark toward a bomb at the rim of the larger square for an explosion.

Confuzion features 64 levels of play, but it is quite difficult to begin with. I found myself confused, as the title boasts, at the very beginning. It is that sort of mind challenge and addictiveness that kept me interested, though, and I would recommend Confuzion to anyone who likes logic-type games.

The black block also can be switched to work backwards and another function allows you to redefine the keys for your convenience. It can also be played with a joystick. Loading time is long but the content justifies it.

Graphics are very good considering the simple requirements, but the movement of the spark is quite random until you figure out how to control it to your own ends. **An interesting, challenging and mindboggling game that shows more originality than we've seen in a long time.**

Fast loader: Yes
Graphics: ****
Sound: *****
Playability: *****
CCI Rating: *****
Price: £6.95 cassette

Company: Incentive Software Ltd, 54 London Street, Reading RG1 4SQ. Tel: 0734 591678.

FOURTH ENCOUNTER (VIC)

If your type of game is 'zapping aliens' of a variety of kinds then ths is the game for you.

The concept of the game is not that different from the 'Space Invaders' of a few years ago, but the way in which this program is put together is excellent. There are many nice touches to the graphics, well supported by all of the zapper type sounds that you could wish for.

The player selects the phase of the attack (with different kinds of weapons and aliens) and also the skill-level and the number of players (one or two).

This is the type of game with which your either bored in a minute or so or else get thoroughly addicted to. **Whatever your particular preference, this game is excellently put together.**

Fourth Encounters requires at least 8K expansion and whilst it can be played without a joystick the use of one certainly sharpens up the reactions!

Graphics: *****
Sound: ***
Playability: ***
CCI Rating: ****
Company: Creative Sparks, Thomson House, 296 Farnborough Road, Farnborough, Hants GU14 7NU. Tel: 0252 543333.

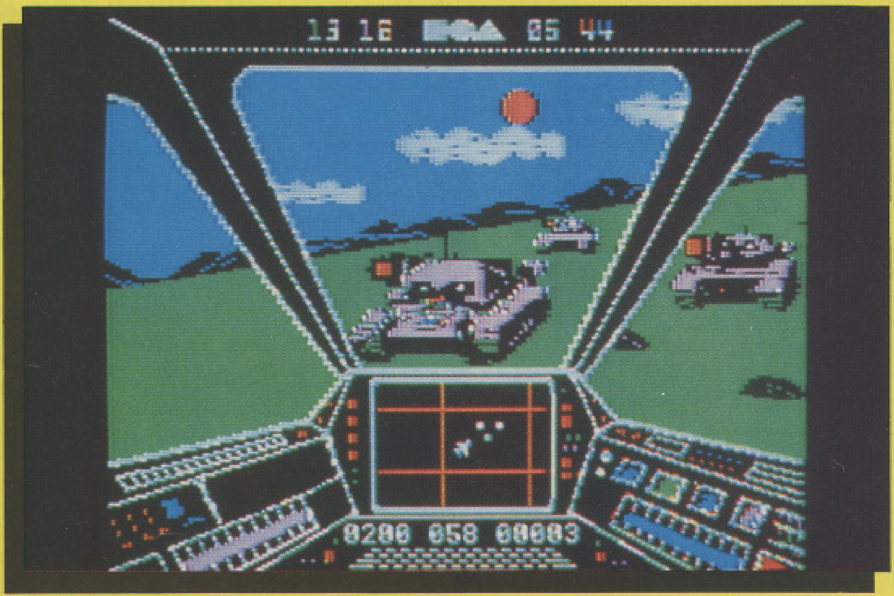
SKYFOX

Described as a "combat simulation" by its producers, Skyfox manages to breach the gap between traditional 'shoot-em-up' games and the more complicated and specialised flight simulations.

Once loaded from disk you must choose which scenario to play in. These consist of either ground or air attacks, varying from training level right through to a full onslaught — definately not for the beginner!! Then you must decide your level of proficiency: again you are given a wide choice from Cadet all the way up to 'Ace of the Base'.

When all your decisions are made the game begins. Having launched you are immediately confronted with a variety of enemies including tanks, fighters and, later, motherships. All these are graphically excellent, defined well and realistically displayed. Depending on which mission you take, a certain number of both tanks and planes have to be searched out and destroyed. This would be almost impossible without the help of both an automatic enemy finder, and a detailed radar map.

I must say that although it didn't grab me at first sight, having played it for a while I became more and more impressed with the smoothness of movement and the accuracy of the programming. Not being a great fan of true simulations **I was pleasantly surprised at the addictive qualities and more importantly the ease of getting into the game.**



One small problem is trying to remember all the keys for the extra weapons. Although they are well documented, in the heat of battle it is annoying to have to display computer appear you intended to kill the mothership!!

Although only available on disk at the moment, a tape version is due out in August.

Fast Loader: Yes
Graphics: ****
Sound: ***
Playability: ****
CCI Rating: ****
Price: £12.95
Company: Ariolasoft, Asphalte House, Palace Street, London SW1. Tel: 01-834 8507.

R.I.P. (VIC)

This is a fairly conventional dodge-the-ghoulie type of game in which one has to dodge a variety of evil creatures whilst attempting to rescue 20 precious chalices.

There are a variety of 20 different caverns in which one learns to find the odd corners in which to hide before a ghoulie zaps you!

You have five lives which soon get expended, a particular danger being when one moves from a familiar to an unfamiliar cavern, in which you are liable to be zapped before you have a chance to negotiate your way around it!

Graphics: ****
Sound: **
Playability: ***
CCI Rating: ****
Price: £1.99
Company: Mastertronic, Park Lorne, 111 Park Road, London NW8 7JL. Tel: 01-486 3478.

TIMESLIP (C16, PLUS/4)

It takes some clever programming to get so much content in so little memory — the kind of care that gives Timeslip that addictive, interesting quality.

As the title suggests, time is slipping and you have 24 hours to synchronise time to 00.00 hours in three time zones. The screen shows all three time zones in colourful detail and you go from one to the other as you wish, to destroy 36 time orbs that are causing the problem.

You can use joystick or keyboard, but the former is easier for manoeuvering around the obstacles and enemies. You can gain time by hitting the right things and lose time the longer you take. Movement is difficult and you'll need a very good, sensitive joystick because you can't control your speed. The only way to succeed is to be quick on the trigger and very observant.

The three zones mislead you into thinking if one doesn't work well, another is bound to and before you know it time has slipped – on and off the screen. **This is one of the best games yet produced for the C16** and being an original rather than a conversion makes it all the better. Good work!

Graphics: *****
Sound: ***
Playability: *****
CCI Rating: *****
Price: £6.95 cassette
Company: English Software, 1 North Parade, Parsonage Gardens, Manchester M60 1BX. Tel: 061-835 1358.

JET SET WILLY II

Considering the success of Jet Set Willy, this follow up is a disappointment.

Rather than being greater and better, it is just more of the same and seemingly at a lower quality because the games market has come to expect so much more. This has Willy, of Manic Miner fame, trying to figure out why his home was strangely altered while he was in hospital. He wanted a bit of redecorating but not a rocket room!

Your task is to explore the newly expanded house and "clean up the mess" It isn't a clear instruction and first time Jet Set Willy players may be confused as to just what the ultimate goal is. The format is platform as usual with more than 100 rooms rather than Jet Set Willy's 68. Nevertheless, you start out in the same room as the first room of JSW.

While this game will be fun for those who haven't tried the other Willy games, it probably would bore those who have. The theme tune is depressingly dull so I would recommend using the music off switch. Movement is slow and tedious. **While there is some challenge to be found for platform fanatics, I've seen better.**

Graphics: ***
Sound: **
Playability: **
CCI Rating: **
Price: £8.95 cassette
Company: Software Projects, Bearbrand Complex, Allerton Road, Woolton, Liverpool L25 7SF. Tel: 051-428 7990.

CHICKIN CHASE

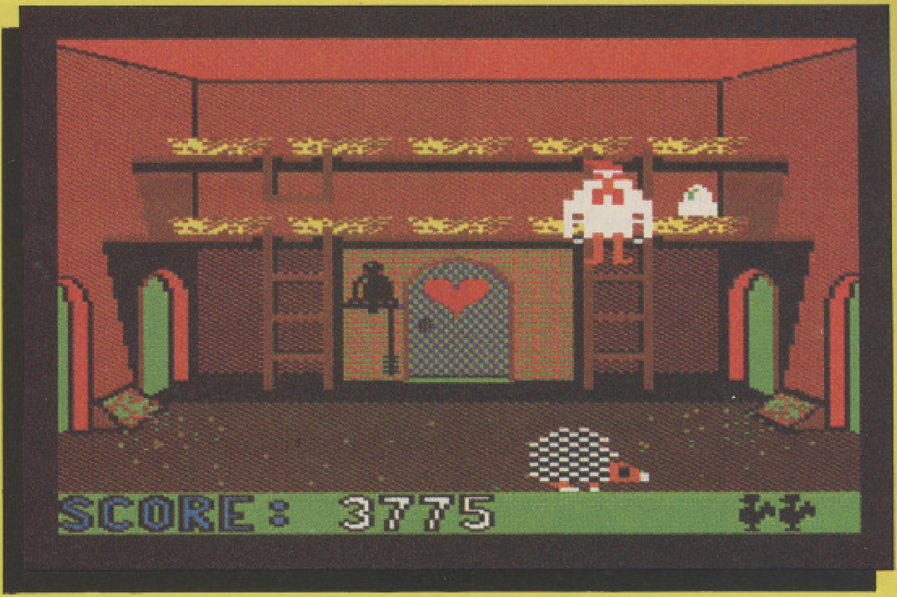
This Firebird budget game is one that even the company says "we couldn't sell it for any more."

It's not that it's a bad game. Chickin Chase is meant to be fun and not at all taken seriously. Right, so you're a chicken — a cockerel in fact — who must guard the chicken house against its colourful enemies, "honour the requests of Madame" and still keep up your strength. If you waver in any, Madame will give you a good bashing over the head.

The colourful enemies include a black and white spotted hedgehog and a vicious rat with big ears. The set is decorated more colourfully than any chicken house you've ever seen and the big red heart on the door to the hen house gives some indication of the game's purpose — to multiply.

The secret to a high score is keeping as many eggs on the nest as possible, which means going about your various "tasks" with no time to spare since eggs do hatch and must be replaced.

This is **a fun game** with good graphics, including a winking chicken. What sound there is is good, but basically this is just a pass the time sort of deal and for £2.50 it is quite a bargain. Control is by keyboard or joystick.



Graphics: ****
Sound: **
Playability: ****
CCI Rating: ***
Price: £2.50 cassette
Company: Firebird Software, Wellington House, Upper St. Martin's Lane, London WC2H 9DL. Tel: 01-379 6755.

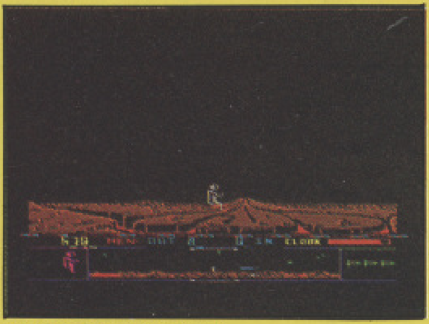
DROP ZONE

This is no game to sneeze at. Drop Zone is a tough version of your basic enhanced space shoot-em-up — something of a cross between all those Defender-like games and Jet Boot Jack.

Though it isn't terribly original, it is addictive and demands you reach a very high 10,000 points before you get beyond the insulting end game comment of "Rank not listed. Practice recommended." What a blow.

Graphics are excellent with a 3D spacey landscape, but there are only about six scenes. Sound effects are the usual zap and zoom at a higher quality. Your flying commander adjusts his seated position as he tears through space blasting spores, anti-matter and nemisites.

Overall, it's a high quality zap-em, worth the buy if that's your style.



Fast loader: Novaload
Graphics: ****
Sound: ***
Playability: *****
CCI Rating: ****
Price: £9.95 cassette, £14.95 disk
Company: US Gold Ltd, Unit 10, Parkway Industrial Estate, Heneage Street, Birmingham B7 4LY. Tel: 021-359 3020.

ROCKMAN (VIC)

This game is not too dissimilar in concept from R.I.P. in that one has to negotiate the customary caverns, this time collecting pieces of a magic amulet (in flashing colours) whilst at the same time avoiding diverse monsters and rockfalls.

Actually the rockfalls are the greatest hazard and whilst avoiding the monsters and picking up parts of the amulet are not too difficult after a little practice, if you linger overlong then you get a random zap anyway.

I found the game intriguing, but eventually frustrating as I never managed to get beyond the first cave.

The graphics are nice and chunky and the sound good, although irritating after a while. Again, on a value for money rating, this should rank very high indeed. **It calls for a combination of skill speed and determination** and if you let concentration lapse for a split second you are liable to lose one of your five lives.

Graphics: ****
Sound: ***
Playability: ****
CCI Rating: ****
Price: £1.99
Company: Mastertronic Park Lorne, 111 Park Road, London NW8 7JL. Tel: 01-486 3478.

SWORD OF DESTINY (C16, PLUS/4)

The programmer put a lot of time and trouble into this arcade adventure, particularly to fit it into the meager 16K allotment of the C16.

Kelok is a fighter killed and stripped of his heart which he must find to rest his tormented soul. The scenes are colourful but hardly "eerie" as was the intention. Nevertheles, the Abyss of Death has plenty of wandering skulls and creatures to avoid and the bounding warrior wields his sword for protection.

Reaction to commands, even with a very good joystick, is not as precise as I would have liked and once you are near an object that you must collect, it is often difficult to do so. The traditional ploy of walking over the object or pushing the fire button does not work as easily as it should. The knight can only use his sword to the left or right and so misses anything on the ground in front of him.

Generally, Sword of Destiny is an entertaining game and looks very good. It is the frustration of playing that is just a bit too high to be totally addictive. Because of the shooting action (the sword seems to spit bones), this is really more arcade than adventure.

Graphics: *****
Sound: ***
Playability: ***
CCI Rating: ***
Price: £6.95 cassette
Company: Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS. Tel: 0742 753423.

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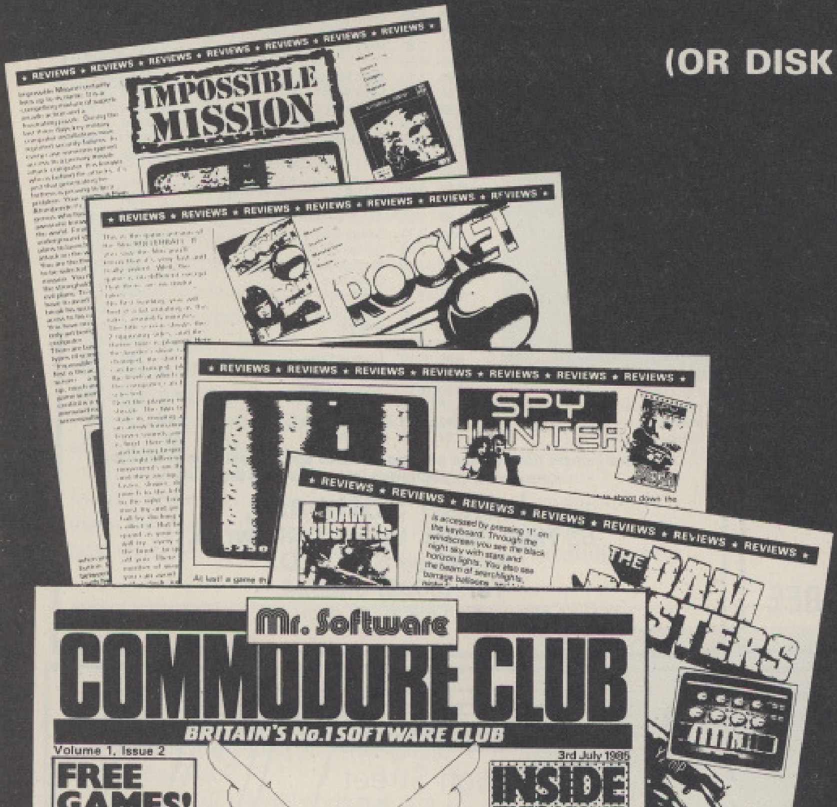

Mr. Software

COMMODORE CLUB

BRITAIN'S No.1 SOFTWARE CLUB

Volume 1, Issue 2

3rd July 1985

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ELITE

Description
Probably the best-selling game on the BBC, now available for the Commodore 64, Elite is described as "a fantastic voyage of discovery and adventure" by Firebird.

Storyline
You are in command of a Cobra spaceship, and all you have is 100 credits, seven lightyears of fuel and a laser to defend yourself with. The object of the game is to accumulate as much money and equipment as you can — in the shortest possible time. To do this you have to trade between "countless" planets. This involves interplanetary and intergalactic space travel, and as you amass your fortune on these journeys you will also build up a large number of enemies. Local police will be after you if you are involved in black-market trading. When the game starts you are given the status of harmless, but as you get more experienced, and richer, there will be a price on your head, so there will be bounty hunters to contend with. Then, as your wealth becomes larger and more well known, pirate vessels will start to come after you. There are also space-hermits and the deadly enemy of any humans — the Thargoids.

The Game
Essentially, as a space trader you have to learn how to survive in space, find the planets that are safe and those that are not, and boost your cargo and space rating as high as possible. The game begins with your ship equipped

Front View

Elite continued on page 4.

INSIDE THIS ISSUE

- TOP TEN — How you voted
- REVIEWER'S CHOICE — Summing up on the new hits
- WHAT THE PAPERS SAY — We give a run down on their reviews
- SHADOWFIRE — Special Bonus Price at just £5.95
- GAME TIPS — Passing on your suggestions
- BUMPER ISSUE — 16 pages of reviews

...Until you've seen the low, low prices in our Commodore Club magazine. Light up your bank manager's face by getting **Shadowfire** for just **£5.95** (saving £4), steal yourself a bargain with **Spyhunter** at only **£4.95** or join the priveleged by buying **Elite** at **£11.50** instead of £14.95. What's more, if you get an order in before the end of August you can claim a **FREE GAME**. Yes, place an order worth £12 or more and you can take *Mastertronic's* **Kik Start** (which was given a rave review in the July issue of *Zap!*), or the Spectrum game **Finders Keepers** — recently released on the Commodore 64 — at no extra cost.

So what's the catch, we hear you say? How many tapes must I commit to buy? The answer is **none**. If you become a subscriber to our magazine (which is available only by post) then we enrol you as a member of our software club at no extra cost. It's then up to you whether you buy anything or not. There are no minimum purchase requirements.

The magazine is published six times a year and is packed with product reviews (including lots of screen photos) game playing tips, competitions to enter and more. Hurry now — if you take out a subscription within the next four weeks we'll give you a £1 voucher towards your first purchase through the Club.

SUBSCRIPTION APPLICATION CCI 9/85

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Mr. Software

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This month your letters are answered by Rae West. Rae is the author of three large reference books on Commodore computers; the latest is Programming the Commodore 64, following Programming the VIC and Programming the PET?CBM. All are published in the UK by Level Ltd. Rae is also published in the USA by Compute! Books.

Dear Rae

I am the owner of a Commodore 64. I would like to know whether I could obtain a high level BASIC for it, containing some of the following commands:

A command to enable the user to define the length of a variable to be recognised by a computer. I would also like to be able to use Random Access Files and to use loops like the SBAS REPEAT . . . UNTIL . . . WHILE . . . DO . . . ENDWHILE; LOOP . . . ENDLOOP. I would also like indents in the actual listing of the program.

I would also like easier graphical commands e.g. plotting (Paint or Fill); drawing circles (Circle . . .); a command to plot in a certain part of screen and move it somewhere else (DEFBLOCK . . . SHIFTBLOCK . . . COPYBLOCK. . .); More variable conditions (CASE . . . OF . . . WHEN . . . OTHERWISE . . . ENDGASE). I would also like a command which does the equivalent to the SBAS FORMAT$ and CURSOR, and commands like the SBAS FORMATS$ and CURSOR, and commands like the SBAS procedures on functions.

I would also like commands very much like the SBAS DELETE and CENUMBER, and a way of passing variables in and out of procedures and functions and an easier way of accessing information on disks and the Commodore 64's musical and sprite capabilities.

The commands in brackets are the SBAS (RMCBASIC) examples of the commands I would like. I would especially want to expand the screen's dimensions. On the whole I would like to know where I could obtain a high-level BASIC for my Commodore 64 and what the price would be.

I would also like to know whether it is possible for one to obtain a software package which would enable me to use languages such as PASCAL, FORTRAN or COBOL.

Elroy Alexander
Cheshunt
Herts

As far as I know, the nearest approach to the language you want is probably COMAL, which is a public domain (ie. free) program on disk — available from ICPUG (The Independent Commodore Products User Group). It also exists as a more expensive cartridge, containing 64K of machine language, with plenty of commands, error messages, and so on. This also is obtainable from ICPUG.

I don't think Research Machines' BASIC has been initiated on the 64, but COMAL has many of the features you list, including loop structures, indented lines, and graphics commands. There are also quite a few BASIC extensions around.

Bear in mind that the software you develop for these languages will only run on another 64 which also has the same language. PASCAL, COBAL & FORTRAN are none of them available for the 64 as far as I know: one reason is their large memory requirements.

Dear Editor:

I am sure that many readers who own a Commodore Plus 4 micro have experienced the same problems as myself in obtaining technical information and software for their machines.

I intend starting a non-profit making service which aims to provide Plus 4 users with technical information, product news, software exchange etc. The material offered would be based upon articles, listings etc. contributed by members of the group.

If any readers are interested, would they please send a stamped addressed envelope for further details. I would also like to hear from any suppliers of Plus 4 software, peripherals etc.

Steve Kent
Walsall
West Midlands

Mr. Kent's address is 203 Wolverhampton Road, Pelsall, Walsall, West Midlands WS3 4AW.

Dear Editor:

I should be grateful if you could record our club in your listing of Commodore user groups.

Commodore Computer Users Group (Townsville)
1 Paxton St,
Townsville 4810,
AUSTRALIA
Phone (077) 726454

We meet at 7.30pm on the first Wednesday of every month except January. Meetings are held in the computer room of Ignatius Park College, Ross River Rd.

A.W.E. Moore
(Secretary)
Townsville
Australia

Dear Rae:

I recently purchased an MPS801 Printer to replace an old 3022 in order to get more compatibility with my Commodore 64, and am disappointed to find that there is no mention of paging in the handbook.

The MPS801 does not respond to the paging commands, chr$(147) and chr$(19) which operated the paging and paging off on the 3022 printer.

I am sure that it is possible to have paging on the MPS801 as I am using a commercial word processing program which achieves this.

Can you please advise me how I can overcome this problem in my own programs which are written in Basic.

J.A. Powell
Kings Heath
Birmingham

In my opinion it's always best to avoid sending special characters to the printer. The reason is that printers vary a great deal! Commodore, for example, uses the secondary address on its printers, but most other manufacturers don't have this; many machines use the Escape character, CHR$(27), followed by their own peculiar arrangement of characters; and the low-range ASCII characters below 32 also have a wide range of interpretations.

Page-throws are a good illustration of this: they're easy to program round, and therefore there's no point relying on the printer to perform this function.

In BASIC, all you need to do is keep tracks of the number of lines printed, as they are printed, and insert a BASIC routine to print (say) ten lines after every fifty, if you wish to have sixty lines per page on a completely full sheet. This has the extra advantage of allowing you to control the number of lines at the head and foot of each page.

Dear Rae:

Could you tell me if it is possible to expand my Commodore 16 so that I can use Commodore 64 software? If I can, could you possibly tell me the price?

R J Skelton
Trimdon Station
Co Durham

It is possible to buy equipment to expand the C16: for example, 16K RAM packs are available.

However, the result is a machine similar to the Plus/4, able to run Plus/4 software provided its new memory is sufficient.

It isn't possible to use Commodore 64 software on the resulting machine, since the entire architecture of the machines, especially the chips controlling sound and graphics, is different. The only exception could be very simple BASIC programs, using no graphics or sound routines. I'm afraid Commodore designed the C16 to be incompatible with all its other machines, and there's really nothing to be done about this.

Do you have a computing problem, or advice to offer other readers? Write to us at:
Queries,
Commodore Computing International,
Finsbury Business Centre,
40 Bowling Green Lane,
London EC1R 0NE
Please do not send your SAE's as it is impossible to reply personally to every query.

Using Relative Files

In the first of a two-part article, David Brooks explains how to take advantage of the special features of relative files.

Once you've got your Commodore 64 computer up and running, one of its most obvious uses is the storage and retrieval of information in the form of data files. Not surprisingly, there are several kinds of data files to serve different needs. Two kinds, sequential data files and program files, can be used with either a cassette or disk drive. Two other kinds, relative data files and random, or "user," data files, can be used on the C-64 only with a disk drive like the 1541 or its equivalent.

Sequential data files have a simple structure and are easy to read and write. (Program files are a special kind of sequential file, written so that the operating system will automatically recognize them as programs and read (LOAD) or write (SAVE) them accordingly.) The main limitation of a sequential file is that its records must be read or written from the beginning of the file, and always sequentially in the "forward" direction. (Hence the name of this file structure.) You can't read a record from the middle of the file, change it, and then re-write that single new record on the file. Instead, you have to read the entire file into memory, change the record, and then re-write the entire file.

Despite this limitation, the sequential file is perfectly adequate for many applications involving storage and manipulation of small amounts of data. However, problems will arise if your file is larger than will fit into memory all at once, or if you're annoyed by the time required to read and write an entire file. The 1541 disk drive is much faster than a cassette, but it is still pretty slow as disk drives go, partly because it transfers data on bit at a time (serially), instead of one byte at a time (in parallel).

Relative Files to the Rescue

Fortunately, the problems associated with sequential files can be solved with relative files. These are Commodore's implementation of what are generally called "random access" files. Don't confuse this term with what Commodore call random, or user, files; these are yet another kind of random access file! In Commodore's BASIC, user files are more cumbersome to use than either sequential or relative files, so there's very little reason for BASIC programmers to use them.

With relative files you can read a record into memory from anywhere in a file, change or use it in any way you choose, and re-write it on the file if necessary, all without accessing any of the other records in the file. As you might expect, relative files are just what you need if all your data file won't fit into memory at once! But, more importantly, they give you a flexibility for record managing that's just not possible with sequential files.

Unfortunately, the structure of relative files is a bit more complicated than for sequential files. It doesn't help that the VIC-1541 User's Manual does a poor job of describing how to use these files. Even if you understand the syntax of the relative file commands, it's still not obvious how to structure a program to take advantage of them. Like many other programming problems, this one has more than one solution. I'm going to show you one approach that takes advantage of the special features of relative files.

Creating Record-Managing Programs Using Relative Files

There are certain characteristics shared by any record-managing program. These include provisions for adding and changing information (in the form of data records), easy access to the data on the file, some safeguards for data already stored in the file, and some level of "user friendliness" in the form of protection against user errors.

By their very nature, relative files encourage selective access to data records according to user-specified criteria. This is often implemented with what is called the "linked list" concept, which enables you to use a "keyword" to link together all records in a file that share one or more common properties.

Let's take as an example a data file that contains records for several different bank accounts. The records can be stored in any order, like this:

Record number	Keyword	Data	Link
. . .	. . .	. . .	
2	Acct. B	. . .	0
. . .	. . .	. . .	
4	Acct. A	. . .	0
. . .	. . .	. . .	
8	Acct. B	. . .	2
. . .	. . .	. . .	
12	Acct. B	. . .	8
13	Acct. A	. . .	4
. . .	. . .	. . .	

In this example, the account indentification functions as the keyword. If you were to look at record 13, the link included in that record would indicate that the previous entry for account A was in record 4. The "O" link in record 4 would indicate that there were no more records for account A. Similarly, record 12 would lead you to entries for account B in records 8 and 2.

There's one little catch: How do you tell your program where to look for the most recent entry of each account? This information is maintained in a separate "pointer file." For this example, the pointer file would look like this:

Keyword	Last entry
Acct. A	13
Acct. B	12
. . .	

This arrangement assumes that the data file contains many entries for each keyword. If so, then the pointer file is much smaller than the data file and can be stored as a simple sequential file to be read into memory whenever you want to work with the main data file. When you write a record-managing program, it can deal with

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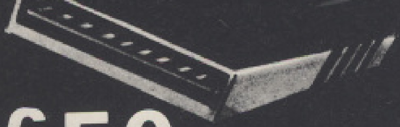

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the pointer file automatically, so you don't have to worry about it when you're using the program.

Using Linked Lists

The linked list concept is, I hope, easy enough to understand. However, implementing it in practice is quite another matter. The goal is a program that allows you to add, change, and list records and also makes use of the linked list concept to access records by their keywords. The truth of the matter is that such a program is a bit of work to write. With that in mind, it seems desirable to create a record-managing structure that is general enough to work with a variety of data files.

I've broken this problem down into two parts. First, I've defined a general relative file format and written a program to create files with the desired properties. Then I've written another program to manipulate records within this general format. Any file created with the first program can be used with the second. I'll describe the first program in this, the first of a two part article. The second part will describe the record-managing program.

Creating Relative Files

My program for creating relative files is called CREATE. To use the program, just select a file name that doesn't yet exist on whatever disk you'll be using. This file name can be no more than 11 characters long – I'll explain why in a moment. Then, run the program and respond to the prompts.

You can design the screen display for up to 20 data fields and their labels. Each set of data fields will become one record in the file. It's important to understand that once you specify that number of characters in each field, you can't change your mind later without starting all over again, so you should analyse your requirements carefully before running this program!

I've imposed a couple of restrictions on the data fields and labels. First, each label and its associated data can occupy no more than one screen display line of 39 characters. This restriction can be removed, if you like, with simple modifications to the program (see the program description below).

Secondly, the total number of all the data characters in a record can be no more than 247. Why 247? Six characters are reserved in each data record for linked list information, and one more is for the RETURN written at the end of each record. That's a total of 254 characters, the maximum allowed record length for relative files. This restriction cannot be removed without drastic alterations in the way I've designed this program.

You will note that CREATE asks you to specify the number of records in the relative file. I did this because subsequent use of the file will be speeded up somewhat if a place has already been assigned for the records. If, in the future, you need more records than you specify now, the disk operating system will create them for you as long as there is space on the disk. So it's not necessary for you to know this number exactly; just take a guess.

Note that numbers are converted to and stored as characters in my relative file structure. This is accomplished with the BASIC STR$ function. I've done it this way because it's easier to keep track of exactly what gets written on a record when you can keep the lenght of each field constant. If I write a number like "10" onto a disk record, it will be easier to find later on if I'm sure it will occupy the same number of characters in the record as a longer number like 10.3333, even if I have to fill out the field containing "10" with blanks. Also, this approach will make it easier to write a program that will work with a variety of files. Record-managing programs often don't require much mathematical manipulation; numbers stored as characters can easily be converted back to numbers with the VAL function as required.

After you've run CREATE, you will have three new files on your disk:

file name.DATA	(REL)
file name.HEAD	(SEQ)
file name.PTR	(SEQ)

The "extension" characters, consisting of the period and what follows it, identify the three different files associated with the file name. Use of these extensions, with up to five characters counting the period, explains why the file name you specify in CREATE can have only 11 characters; Commodore file names can have no more than 16 characters. The .HEAD file contains the field labels ("headers") and the .PTR file will contain the pointers needed to access records by keyword in the .DATA file.

Remember, these files aren't much good by themselves. They are meant to be used with the program I'll discuss in Part 2 of this article.

Here's How Program CREATE Works

Lines 5-380: Initialize some variables and display instructions. Line 20 sets the screen background to black, the colour I prefer for my monochrome monitor, and sets the keyboard for lowercase/uppercase operation.

Lines 390-490: This is the basic loop for defining the labels and data fields.

Lines 400-700: This part of the program allows you to change labels and data field definitions and prevents you from entering inappropriate information. Line 460 restricts the length of the label plus the data field to one line. You can remove this line if you like. You are prevented from entering a total of more than 247 characters for a maximum of 20 data fields.

Lines 710-880: The program checks one more time for the length of your data fields. Then it allows you to save the labels and information about the data fields on a sequential file. This file will be read into memory in all subsequent uses of your data file.

Lines 890-1080: Now the program creates a blank relative file.

Lines 1090-1160: Finally, the program creates a sequential file to store the pointers to the most recent entry of records for each keyword.

Lines 1170-1190: This subroutine checks for disk errors and prints an informative message. Error number 50 should be ignored when you're using relative files.

Lines 1200-1380: This subroutine replaces the BASIC INPUT command with the GET command in order to give you more control over how your computer responds to keyboard input. Line 1200 disables the RUN/STOP and RESTORE keys. You can delete this line if you like; I have put it here to prevent accidentally stopping the program whilst typing input. Line 1210 enables key repeats for all the C-64's keys.

Line 1220 initializes the string variable I$ that will contain the characters you type in response to the prompt you've written on the screen. (Remember that the INPUT command provides its own prompt in the form of a "?". You must now provide your own prompts, as I've done in the main program.) When you're done, press the RETURN key just as you would do when using the usual BASIC INPUT command. Line 1240 tells the GET command how to respond to a RETURN character.

Line 1270 responds to the INST/DEL key and treats it just like a backspace key. Lines 1280 and 1290 define which characters will be allowed. You can change this if you like; refer to the ASCII-to-character conversion table in your user's manual or programmer's reference guide.

Line 1310 tests the length of your response. Whereas the BASIC INPUT command limits your response to 88 characters, you can use this subroutine to input up to 255 characters at once. Line 1320 looks for a quote mark and turns off the C-64's "quote mode" so that this subroutine will treat a quote mark just like any other character. Lines 1370-1380 restore the keyboard functions to their orginal state. In particular, it's necessary to enable the normal response to the RUN/STOP and RESTORE keys.

```
5 rem program name create
6 rem david r. brooks, dec 84
10 rem create a new relative file
20 poke53280,0:poke53281,0:printchr$(14)
30 printchr$(147):print"CREATE{SS}A{SS}NEW{SS}RELATIVE{SS}FILE":print
40 print"This program creates three files:":print"  File name.data";
50 print", a relative file for       storing data records"
60 print"  File name.head";
70 print", a sequential file of      screen display headings"
80 print"  File name.ptr";
90 print", a sequential file of       relative file keyword pointers"
100 print
110 print"The program will crash if you try to"
120 print"use a file name that already exists on"
130 print"your disk.  If you wish to re-use an "
140 print"existing file name, stop this program"
150 print"(with RUN/STOP-RESTORE) and scratch"
160 print"the existing file(s) before proceeding.":print
170 print"This program is intended to work in"
180 print"conjunction with RELFILE MANAGER.":print
190 print"Your file name should have no more than"
200 print"11 characters.  Additional characters"
210 print"will be truncated.":print
220 input"File name";n$
230 printchr$(147)
240 dimh$(20),f(20)
250 print"First I need your help to design the "
260 print"headings for the new relative file"
270 print"you've just created.":print
280 print"You can format up to 20 lines of"
290 print"text/data.  The data fields can have no"
300 print"more than 247 characters altogether.":print
310 print"The first field must contain a keyword"
320 print"if you're going to use this file in"
330 print"program RELFILE MANAGER.":print
340 print"Ready? Press any key to continue..."
350 getz$:ifz$=""then350
360 bl$="                                        ":rem 40 spaces
370 cd$="{HM}{CD}{CD}{CD}{CD}{CD}{CD}{CD}{CD}{CD}{CD}{CD}{CD}{CD}{CD}{CD}{CD}{CD
}{CD}{CD}{CD}{CD}{CD}":rem 22 cursor down
380 printchr$(147):nc=0:wi=0:fl=0:i=0
390 i=i+1:ifi>20thennc=20:goto500
400 printcd$"Text for line"str$(i)", d to end               "
410 wi=1:gosub1200
420 ifi$="d"thennc=i-1:goto500
430 h$(i)=i$
440 printcd$"How many data characters in line "i"?"
450 wi=1:gosub1200:f(i)=val(i$)
460 iflen(h$(i))+f(i)>39thenf(i)=39-len(h$(i)):rem keep everything on one line
470 fl=fl+f(i)
480 printleft$(cd$,i)h$(i)"{RV}"left$(bl$,f(i))"{RO}"
490 goto390
500 iffl<248then530
510 printcd$"Too many characters ("str$(fl)")                      ":forj=1to1000:next
520 printcd$"Fix it by answering 'n'                    ":forj=1to1000:next
530 printcd$"Is this ok (y/n)?                    "
540 getz$:ifz$=""then540
550 ifz$="y"then710
560 printcd$"Which line to change (d to end)            ":wi=1:gosub1200
570 ifi$="d"then710
580 w=val(i$):fl=fl-f(w)
 70 ifw>=1andw<=ncthen610
600 printcd$"Error. Try again...                ":forj=1to1000:next:goto560
610 printcd$"Text for line "str$(w)"                   "
620 wi=1:gosub1200
630 ifi$="d"then710
640 h$(w)=i$
650 printcd$"How many data characters in line "w"?"
660 wi=1:gosub1200:f(w)=val(i$)
670 iflen(h$(w))+f(w)>39thenf(w)=39-len(h$(w))
680 fl=fl+f(w)
```

```
690 printleft$(cd$,w)bl$left$(cd$,w)h$(w)"{RV}"left$(bl$,f(w))"{RO}";
700 goto560
710 iffl<248then740
720 printcd$"Still too many characters ("str$(fl)")          "
730 forj=1to1000:next:goto560
740 printchr$(147)
750 print"If you’re ready, you can save this"
760 print"sceen on a new data file."
770 print"Do you want to do it (y/n)?"
780 getz$:ifz$=""then780
790 ifz$<>"y"thenprint"OK, I’ll stop right here...":end
800 printchr$(147)
810 print"Here’s what I’m going to store."
820 print"It’s too late to stop me now..."
830 open1,8,15
840 fori=1tonc:printf(i);h$(i):next
850 sn=840:open2,8,2,n$+".head,s,w":gosub1170
860 sn=850:print#2,nc:fori=1tonc:print#2,f(i):next
870 sn=860:fori=1tonc:print#2,h$(i):next
880 sn=870:print#2,0:close2
890 printchr$(147)"You have used "fl" characters"
900 print"for your data fields.":c=fl+7
910 print:print"You can have up to 719 data records"
920 input"How many records";r$
930 r=val(r$)
940 ifr<1orr>719thenprint"Input error. Try again...":goto910
950 print:print"OK, now I’ll create your file."
960 sn=950:open2,8,2,n$+".data,l,"+chr$(c):gosub1170
970 r1=r+1:r2=0:ifr1>255thenr2=int(r1/256):r1=r1-256*r2
980 sn=970:n=0:print#2,n:gosub1170
990 sn=980:print#1,"p"chr$(2)chr$(1)chr$(0)chr$(1):gosub1170
1000 sn=990:print#1,"p"chr$(2)chr$(r1)chr$(r2)chr$(1):gosub1170
1010 close2
1020 printchr$(147):print"I’ve created a new relative file."
1030 print"Its name is "n$"."
1040 print"It has "c" characters per record."
1050 print"It has a ’0’ in the first record"
1060 print"  followed by "r$" empty data records.":print
1070 print"Press any key to continue..."
1080 getz$:ifz$=""then1080
1090 printchr$(147)
1100 print:print"Now I’ll create a bookkeeping file for"
1110 print"pointers.  It will only take a minute."
1120 print"You don’t have to do anything."
1130 sn=1110:open2,8,2,n$+".ptr,s,w":gosub1170
1140 sn=1120:n=0:print#2,n:close2
1150 print:print"OK, I’m done."
1160 close1: end
1170 input#1,e,e$,t,s:ife<20ore=50thenreturn
1180 print"Disk error from line "sn"."
1190 printe;e$;t;s:close2:stop
1200 rempoke808,225:rem disable run stop and restore key
1210 poke650,128:rem enable key repeats
1220 i$="":printchr$(175)chr$(157);
1230 printchr$(175)chr$(157);:z$="":getz$:ifz$=""then1230
1240 ifz$=chr$(13)orz$=chr$(141)then1360:rem respond to return
1250 rem chr$(20) is inst/del key
1260 ifz$=chr$(20)andlen(i$)=0then1230
1270 ifz$=chr$(20)thenprintz$;:i$=left$(i$,len(i$)-1):goto1230
1280 ifasc(z$)>31andasc(z$)<96then1310:rem pick which characters get response
1290 ifasc(z$)>192andasc(z$)<219then1310:rem cap letters in lower/upper mode
1300 goto1230
1310 printz$;:iflen(i$)+len(z$)>255then1340
1320 i$=i$+z$:ifz$=chr$(34)thenpoke212,0:rem turn off quote mode
1330 goto1230
1340 print:print"strings can’t have more than 255"
1350 print"characters..."
1360 ifwi=1thenforz=1tolen(i$):printchr$(20);:next:print:rem wipe out this line
1370 wi=0:poke650,0:rem disable key repeat
1380 poke808,237:return:rem enable stop & restore
```

(Cont next month)

Seeing Double

Double the width and height of characters with this program from Keith Eyeions, designed for use with the MPS-801 or equivalent dot matrix printer

This program enables double size characters to be printed on a dot matrix printer. They are double width AND height, as opposed to the oddly stretched-looking double width characters already obtainable. In area, the double-size characters are four times the size of normal characters, which means they stand out clearly and are useful for headings, titles and notices, being clearly readable.

How to use the program

Pay special attention to the data in the program or you may find odd looking characters. Be sure also to save the program carefully before running it. Insure that the paper feed for the printer is unobstructed, because as each character is printed on two lines, the spacing is important. If the characters are smudged, then adjust the printer as shown in the manual.

The characters defined in this program are all letters, numbers and these symbols: !"&,'()+−./:;><?. It is a good idea to try printing these after you first type the program in to check them. If any other character is entered then a space will be left by the computer.

When you run the program, you will see a constantly changing number . the top left hand corner of the screen while the computer defines the characters. This number is the poke code of the character that the computer is dealing with at the time, and it corresponds with the first number of the first data statement for each character. If you follow these numbers then they will help you to find any errors in the data.

After the character variables have been set up, you will be able to enter text as directed by the computer. You can use the insert/delete and curser keys as in normal, direct mode to edit the text. When you have finished, (and not before) press the return key.

It may be advisable to ensure that the cursor is on or below the end of the text, because sometimes the method of input causes an error message to appear when return is pressed. This can be ignored.

Next it is necessary to tell the computer how many lines there are to be printed. This number is displayed at the top of the screen, and may be increased by pressing f1 and decreased by pressing f3. Press return and the text will be printed. After printing you will be asked whether you want to reprint, erase, or edit the text.

In a similar way it is possible to define your own characters and graphics. You are not, however, limited to the size of a normal character; if you wanted to you could make a character 480 columns across. Problems do arise if you want to have more than seven rows, which entails printing on more than one line. In the double size printing program each character occupies two lines, so the program prints first the upper then the lower half. The characters are made up of two lines of 12 columns, with the last two columns are left blank for spacing purposes. Each character, then is defined by 20 numbers.

Summary of program lines

10-595 Data for characters. Each character has two lines of data; the first number is the poke code for the character (see page 132 of the User Manual) and the rest of the first line is data for the upper half of the character. The second line is for the lower half.

900 Data 999 signals the end of the data.

1000 Sets up arrays. PU$ is the array for the storage of the data for the upper half of the character, while PL$ is for the lower half.

1010-1060 Sets variable BS$ to blank space and uses this to set all character variables to a black space. This is so that if a character is entered in the input stage of the program that has not been defined, a blank space will be printed.

1100-1150 Reads data and defines characters. First CN, the character number, then the data for the upper and lower lines are read. After each line, two CHR$(128)s (blank columns) are added to leave a space between characters when they are printed. When this routine is finished, all data has been stored in the arrays PU$ and PL$ so that it can be obtained easily by the program.

2100-2110 Inputs text. The input statement in 2110 is used to allow normal screen editing and to wait for the return key to be pressed. The variable IP$ has no use or significance.

2140-2155 Obtains number of lines to be printed by using the keys f1 and f3 to increase and decrease it.

2200 Opens file to printer.

2210-2320 Peeks screen memory map then prints the upper then lower half of one line of text. Then loops back for next line of text.

2330 Clears buffer and closes file to printer.

2400-2530 Option to reprint, edit or erase text.

Try this example program:

```
10 OPEN1,4:REM OPEN FILE TO PRINTER

20 DA$=CHR$(213):REM SET DA$ TO DATA FOR ONE COLUMN OF DOTS

30 PRINT#1,CHR$(8)DA$CHR$(15):REM ENTER GRAPHIC MODE,SEND DATA & RETURN

40 PRINT#1:REM CLEAR BUFFER

50 CLOSE1:REM CLOSE FILE
```

The column of dots shown in diagram 1 will be printed.

Characters are made up of six columns, so change line 20 to:

```
20DA$=CHR$(213)+CHR$(213)+CHR$(213)+CHR$(213)+CHR$(213)+CHR$(213)
```

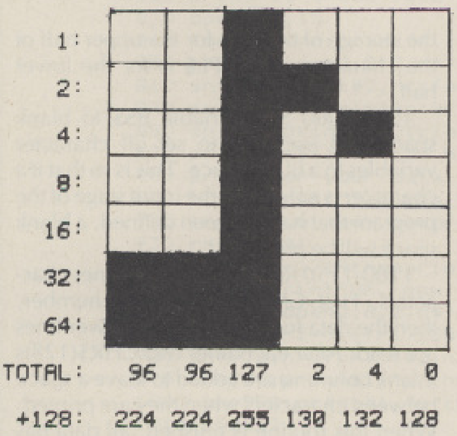
This repeats the data six times making an ordinary sized character of four horizontal lines. Now change line 20 to:

```
20DA$=CHR$(224)+CHR$(224)+CHR$(255)+CHR$(130)+CHR$(132)+CHR$(128)

READY.
```

This prints a musical note like the one shown in diagram 2, which illustrates how the data for the note was obtained.

DIAGRAM 2: a grid for a musical note, with binary coding.

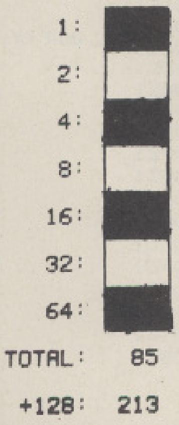


How it works

Defining dot matrix characters

A normal, unexpanded character is made up of six columns of seven dots. The dot matrix printer also permits the use of user-defined graphics and characters, for which the data is sent to the printer in column by column of seven dots. To use these graphics, a CHR$(8) code must be sent in an open file to the printer, which puts it into graphic mode. Next, data must be sent, also in CHR$ form. Each column of seven dots is coded on binary form, see diagram 1 or an example.

DIAGRAM 1: a dot matrix column with binary coding.



First, the numbers adjacent to a filled square are added, then 128 is added to the total. In the example the final total is 213, used in the form: CHR$(213). Finally CHR$(15) is sent to return to normal printing.

```
1 REM***DOUBLE SIZE PRINTING***
2 REM***BY  K. EYEIONS, 1985***
3 :
4 :
5 REM***PART1:CHARACTER DATA***
6 :
9 REM*A*
10 DATA1,252,254,135,131,131,131,131,135,254,252
15 DATA255,255,131,131,131,131,131,131,255,255
19 REM*B*
20 DATA2,131,255,255,195,195,195,195,195,190,188
25 DATA224,255,255,225,225,225,225,225,190,158
29 REM*C*
30 DATA3,252,254,135,131,131,131,131,135,142,140
35 DATA159,191,240,224,224,224,224,240,184,152
39 REM*D*
40 DATA4,131,255,255,131,131,131,131,135,254,252
45 DATA224,255,255,224,224,224,224,240,191,159
49 REM*E*
50 DATA5,255,255,195,195,195,195,195,195,131,131
55 DATA255,255,225,225,225,225,225,225,224,224
59 REM*F*
60 DATA6,255,255,195,195,195,195,195,195,131,131
65 DATA255,255,129,129,129,129,129,129,128,128
69 REM*G*
70 DATA7,252,254,131,131,131,131,195,199,206,204
75 DATA159,191,240,224,224,224,225,241,191,159
79 REM*H*
80 DATA8,255,255,192,192,192,192,192,192,255,255
85 DATA255,255,129,129,129,129,129,129,255,255
89 REM*I*
90 DATA9,128,128,131,131,255,255,131,131,128,128
95 DATA128,128,224,224,255,255,224,224,128,128
99 REM*J*
100 DATA10,128,128,128,128,131,131,255,255,131,131
105 DATA152,184,240,224,224,240,191,159,128,128
109 REM*K*
110 DATA11,255,255,192,224,240,184,156,142,135,131
115 DATA255,255,129,131,135,142,156,184,240,224
119 REM*L*
120 DATA12,255,255,128,128,128,128,128,128,128,128
125 DATA255,255,224,224,224,224,224,224,224,224
129 REM*M*
130 DATA13,255,255,142,156,248,248,156,142,255,255
135 DATA255,255,128,128,128,128,128,128,255,255
139 REM*N*
140 DATA14,255,255,158,188,240,192,128,128,255,255
145 DATA255,255,128,128,129,135,158,188,255,255
149 REM*O*
150 DATA15,252,254,135,131,131,131,131,135,254,252
155 DATA159,191,240,224,224,224,224,240,191,159
159 RFM*P*
160 DATA16,255,255,195,195,195,195,195,231,254,188
165 DATA255,255,129,129,129,129,129,129,128,128
169 REM*Q*
170 DATA17,252,254,135,131,131,131,131,135,254,252
175 DATA159,191,240,224,230,238,188,184,255,231
179 REM*R*
180 DATA18,255,255,195,195,195,195,195,231,254,188
185 DATA255,255,129,131,135,143,157,184,240,224
189 REM*S*
190 DATA19,188,254,231,195,195,195,195,199,142,140
195 DATA152,184,241,225,225,225,225,243,191,158
199 REM*T*
200 DATA20,131,131,131,131,255,255,131,131,131,131
```

```
205 DATA128,128,128,128,255,255,128,128,128,128
209 REM*U*
210 DATA21,255,255,128,128,128,128,128,128,255,255
215 DATA159,191,240,224,224,224,224,240,191,159
219 REM*V*
220 DATA22,191,255,240,192,128,128,192,240,255,191
225 DATA128,129,135,159,252,252,159,135,129,128
229 REM*W*
230 DATA23,255,255,128,128,192,192,128,128,255,255
235 DATA255,255,184,156,143,143,156,184,255,255
239 REM*X*
240 DATA24,143,159,184,240,224,224,240,184,159,143
245 DATA248,252,142,135,131,131,135,142,252,248
249 REM*Y*
250 DATA25,131,135,158,248,224,224,248,158,135,131
255 DATA128,128,128,128,255,255,128,128,128,128
259 REM*Z*
260 DATA26,131,131,131,131,195,227,243,187,159,143
265 DATA248,252,238,231,227,225,224,224,224,224
299 REM*!*
300 DATA33,128,128,128,128,255,255,128,128,128,128
305 DATA128,128,128,128,231,231,128,128,128,128
309 REM*"*
310 DATA34,128,128,191,191,128,128,191,191,128,128
315 DATA128,128,128,128,128,128,128,128,128,128
319 REM*&*
320 DATA38,128,128,252,254,199,199,254,188,128,128
325 DATA158,191,243,227,231,255,184,188,254,230
329 REM*,*
330 DATA44,128,128,128,128,128,128,128,128,128,128
335 DATA128,128,224,240,190,158,128,128,128,128
339 REM*'*
340 DATA39,128,128,176,184,156,142,135,131,128,128
345 DATA128,128,128,128,128,128,128,128,128,128
349 REM*(*
350 DATA40,128,128,128,128,240,248,156,142,135,131
355 DATA128,128,128,128,135,143,156,184,240,224
359 REM*)*
360 DATA41,128,128,128,128,131,135,142,156,248,240
365 DATA128,128,128,128,224,240,184,156,143,135
369 REM*+*
370 DATA43,192,192,192,192,252,252,192,192,192,192
375 DATA129,129,129,129,159,159,129,129,129,129
379 REM*-*
380 DATA45,192,192,192,192,192,192,192,192,192,192
385 DATA129,129,129,129,129,129,129,129,129,129
389 REM*.*
390 DATA46,128,128,128,128,128,128,128,128,128,128
395 DATA128,128,176,248,248,176,128,128,128,128
399 REM*/*
400 DATA47,128,128,128,128,192,224,240,184,156,140
405 DATA152,156,142,135,131,129,128,128,128,128
409 REM*:*
410 DATA58,128,128,128,128,140,140,128,128,128,128
415 DATA128,128,128,128,134,134,128,128,128,128
419 REM*;*
420 DATA59,128,128,128,128,140,140,128,128,128,128
425 DATA128,128,224,240,190,158,128,128,128,128
429 REM*<*
430 DATA60,128,192,224,240,184,156,142,135,131,128
435 DATA128,129,131,135,142,156,184,240,224,128
439 REM*>*
440 DATA62,128,131,135,142,156,184,240,224,192,128
445 DATA128,224,240,184,156,142,135,131,129,128
449 REM*?*
450 DATA63,140,142,135,131,131,131,195,231,254,188
455 DATA128,128,128,128,230,231,131,129,128,128
499 REM*0*
500 DATA48,128,252,254,135,131,131,135,254,252,128
505 DATA128,159,191,240,224,224,240,191,159,128
509 REM*1*
510 DATA49,128,128,140,142,255,255,128,128,128,128
515 DATA128,128,224,224,255,255,224,224,128,128
519 REM*2*
520 DATA50,140,142,135,131,131,131,195,231,254,188
525 DATA248,252,236,230,230,231,227,225,224,224
529 REM*3*
530 DATA51,140,142,135,131,195,195,195,199,254,188
535 DATA152,184,240,224,225,225,225,241,191,158
```

```
539 REM*4*
540 DATA52,192,224,240,184,156,142,255,255,128,128
545 DATA135,135,134,134,134,134,255,255,134,134
549 REM*5*
550 DATA53,191,191,179,179,179,179,179,243,227,195
555 DATA152,184,240,224,224,224,224,240,191,159
559 REM*6*
560 DATA54,240,248,156,206,199,195,195,195,131,131
565 DATA159,191,243,225,225,225,225,243,191,158
569 REM*7*
570 DATA55,131,131,131,131,131,131,227,243,191,159
575 DATA128,128,240,248,158,143,131,129,128,128
579 REM*8*
580 DATA56,188,254,231,195,195,195,195,231,254,188
585 DATA158,191,243,225,225,225,225,243,191,158
589 REM*9*
590 DATA57,188,254,231,195,195,195,195,231,254,252
595 DATA224,224,225,225,225,241,185,156,143,135
900 DATA999
980 :
981 :
983 REM***PART2:DEFINE CHARACTERS***
984 :
1000 DIMPU$(255):DIMPL$(255)
1010 REM***SET CHARACTER VARIABLES TO BLANK SPACE***
1020 BS$=CHR$(128)+CHR$(128)+CHR$(128)+CHR$(128)+CHR$(128)+CHR$(128)
1030 BS$=BS$+CHR$(128)+CHR$(128)+CHR$(128)+CHR$(128)+CHR$(128)+CHR$(128)
1040 FORA=0TO255
1050 PU$(A)=BS$:PL$(A)=BS$
1060 NEXT
1099 REM***READ DATA & DEFINE CHARACTERS***
1100 READCN:IFCN=999THEN2100
1103 PRINT"♥"CN
1105 PU$(CN)="":PL$(CN)=""
1110 FORA=1TO10:READDA:PU$(CN)=PU$(CN)+CHR$(DA):NEXT
1120 PU$(CN)=PU$(CN)+CHR$(128)+CHR$(128)
1130 FORA=1TO10:READDA:PL$(CN)=PL$(CN)+CHR$(DA):NEXT
1140 PL$(CN)=PL$(CN)+CHR$(128)+CHR$(128)
1150 GOTO1100
2095 :
2096 :
2097 REM***PART3:SCREEN DUMP***
2098 :
2100 PRINT"♥▩PLEASE TYPE TEXT,PRESS RETURN TO PRINT■";
2110 INPUT"";IP$
2140 PRINT"▩▩                         ■               ":REM*25SPACES,15SPACES*
2150 PRINT"▩▩NO OF LINES TO BE PRINTED:■ "LP"■   "
2151 GETQW$:IFQW$=""THEN2151
2152 IFQW$="■"ANDLP<38THENLP=LP+1:REM*F1*
2153 IFQW$="■"ANDLP>1THENLP=LP-1:REM*F3*
2154 IFQW$=CHR$(13)THENGOTO2200
2155 GOTO2150
2199 REM***PRINTOUT***
2200 OPEN1,4
2210 FORLD=1TOLP
2215 REM***PRINT UPPER PART***
2220 FORSA=0TO39
2230 CC=PEEK(1024+SA+(LD*40))
2240 PRINT#1,CHR$(8)PU$(CC);
2250 NEXTSA
2260 REM***PRINT LOWER PART***
2265 FORSA=0TO39
2270 CC=PEEK(1024+SA+(LD*40))
2280 PRINT#1,CHR$(8)PL$(CC);
2290 NEXTSA
2300 PRINT#1
2310 PRINT#1,CHR$(15)
2320 NEXTLD:REM***LOOP BACK TO PRINT NEXT LINE***
2330 PRINT#1:CLOSE1
2400 PRINT"▩▩PRINT AGAIN?                            ":REM*28SPACES*
2410 GETQW$:IFQW$=""THEN2410
2420 IFQW$="Y"THEN2200
2430 IFQW$="N"THEN2500
2440 GOTO2400
2500 PRINT"▩▩ERASE TEXT?                             ":REM*29SPACES*
2510 GETQW$:IFQW$=""THEN2510
2520 IFQW$="Y"THEN2100
2530 IFQW$="N"THENPRINT"▩▩PLEASE EDIT TEXT,PRESS RETURN TO PRINT■";:GOTO2110

READY.
```

CCI

Upgrade Your 64 ROM

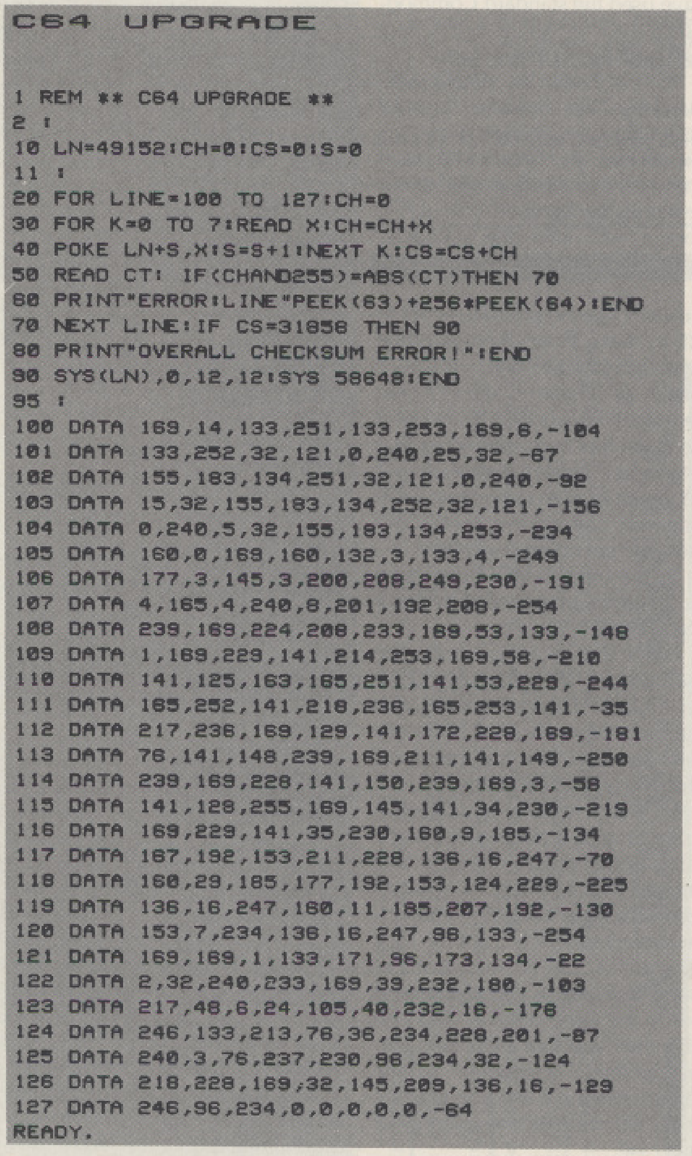
Early 64's contained bugs in the Kernal ROM. Mike Hart reveals how to eliminate these bugs with his program '64 Upgrade'.

If, like me, you have a 64 which was manufactured some time before mid-1984, then you are likely to have an original version of the ROM which contained one or two bugs. Subsequent releases of the ROM corrected these bugs, contained not in the BASIC ROM itself but rather in the Kernal ROM. To distinguish between the original ROMS and the update, then peek location 65408 — if it returns a 0 then you have the original ROM whilst a 3 indicates the corrected version.

There are four principal bugs that are corrected:

1. If you clear the screen and then poke a character into the screen memory, the current character colour is automatically poked into the colour memory. This makes the 64 behave much like the PETS and you do not have to be concerned with poking both a value and its colour into memory.
2. A screen edit bug has been fixed which occasionally manifested itself with certain colour combinations when you tried to delete characters on the bottom line of the screen.
3. The INPUT bug has been fixed. If a message in an INPUT statement went beyond the end of the line then the message itself became incorporated into the value that was input.
4. There is a modification to one of the RS232 handling routines.

As most owners are aware, it is possible to amend their machines by POKEing the ROM into the RAM that lies underneath it and then performing modifications to the RAM. For this article, I have put together and cross-checked information from a variety of sources, principally that published by Mike Todd in the ICPUG Newsletter of March, 1984, and by Raeto West in 'Programming the Commodore 64'.



```
C64  UPGRADE


1 REM ** C64 UPGRADE **
2 :
10 LN=49152:CH=0:CS=0:S=0
11 :
20 FOR LINE=100 TO 127:CH=0
30 FOR K=0 TO 7:READ X:CH=CH+X
40 POKE LN+S,X:S=S+1:NEXT K:CS=CS+CH
50 READ CT: IF(CHAND255)=ABS(CT)THEN 70
60 PRINT"ERROR:LINE"PEEK(63)+256*PEEK(64):END
70 NEXT LINE:IF CS=31858 THEN 90
80 PRINT"OVERALL CHECKSUM ERROR!":END
90 SYS(LN),0,12,12:SYS 58648:END
95 :
100 DATA 169,14,133,251,133,253,169,6,-104
101 DATA 133,252,32,121,0,240,25,32,-67
102 DATA 155,183,134,251,32,121,0,240,-92
103 DATA 15,32,155,183,134,252,32,121,-156
104 DATA 0,240,5,32,155,183,134,253,-234
105 DATA 160,0,169,160,132,3,133,4,-249
106 DATA 177,3,145,3,200,208,249,230,-191
107 DATA 4,165,4,240,8,201,192,208,-254
108 DATA 239,169,224,208,233,169,53,133,-148
109 DATA 1,169,229,141,214,253,169,58,-210
110 DATA 141,125,163,165,251,141,53,229,-244
111 DATA 165,252,141,218,236,165,253,141,-35
112 DATA 217,236,169,129,141,172,229,169,-181
113 DATA 76,141,148,239,169,211,141,149,-250
114 DATA 239,169,228,141,150,239,169,3,-58
115 DATA 141,128,255,169,145,141,34,230,-219
116 DATA 169,229,141,35,230,160,9,185,-134
117 DATA 167,192,153,211,228,136,16,247,-70
118 DATA 160,29,185,177,192,153,124,229,-225
119 DATA 136,16,247,160,11,185,207,192,-130
120 DATA 153,7,234,136,16,247,96,133,-254
121 DATA 169,169,1,133,171,96,173,134,-22
122 DATA 2,32,240,233,169,39,232,180,-103
123 DATA 217,48,6,24,105,40,232,16,-176
124 DATA 246,133,213,76,36,234,228,201,-87
125 DATA 240,3,76,237,230,96,234,32,-124
126 DATA 218,228,169;32,145,209,136,16,-129
127 DATA 246,96,234,0,0,0,0,0,-64
READY.
```

The program called 64 UPGRADE actually does three jobs:

(a) Firstly it sets up machine code routines to allow the programmer or user to alter the default character colour, background and border colours with a single SYS call.

(b) Secondly, it transfers the BASIC and the Kernal ROM into RAM.

(c) And thirdly, it reads in modifications, either in the form of individual bytes or in the form of three 'tables' of modifications.

The whole program is written in machine code for speed of use. You will notice that there is a checksum at the end of every line which is simply the sum of the values contained in each line ADDed with 255 to get the low byte and then turned into a negative value to distinguish it easily from the rest.

Now a word about the parameters that allow you to alter the default colours. The program as written defines the start point of the code as a variable LN (for Location) which takes the value of 49152 ($C000). By default, I have used the standard Commodore power up values of light blue and dark blue although I personally detest them!

SYS(LN) will activate the ROM UPGRADE but keep the default character colour, screen colour and border colour.

SYS(LN),x will alter the character colour.

SYS(LN),x,y will alter the character colour and also the screen (background) colour.

SYS(LN),x,y,z will alter the character colour, screen colour and also the border colour.

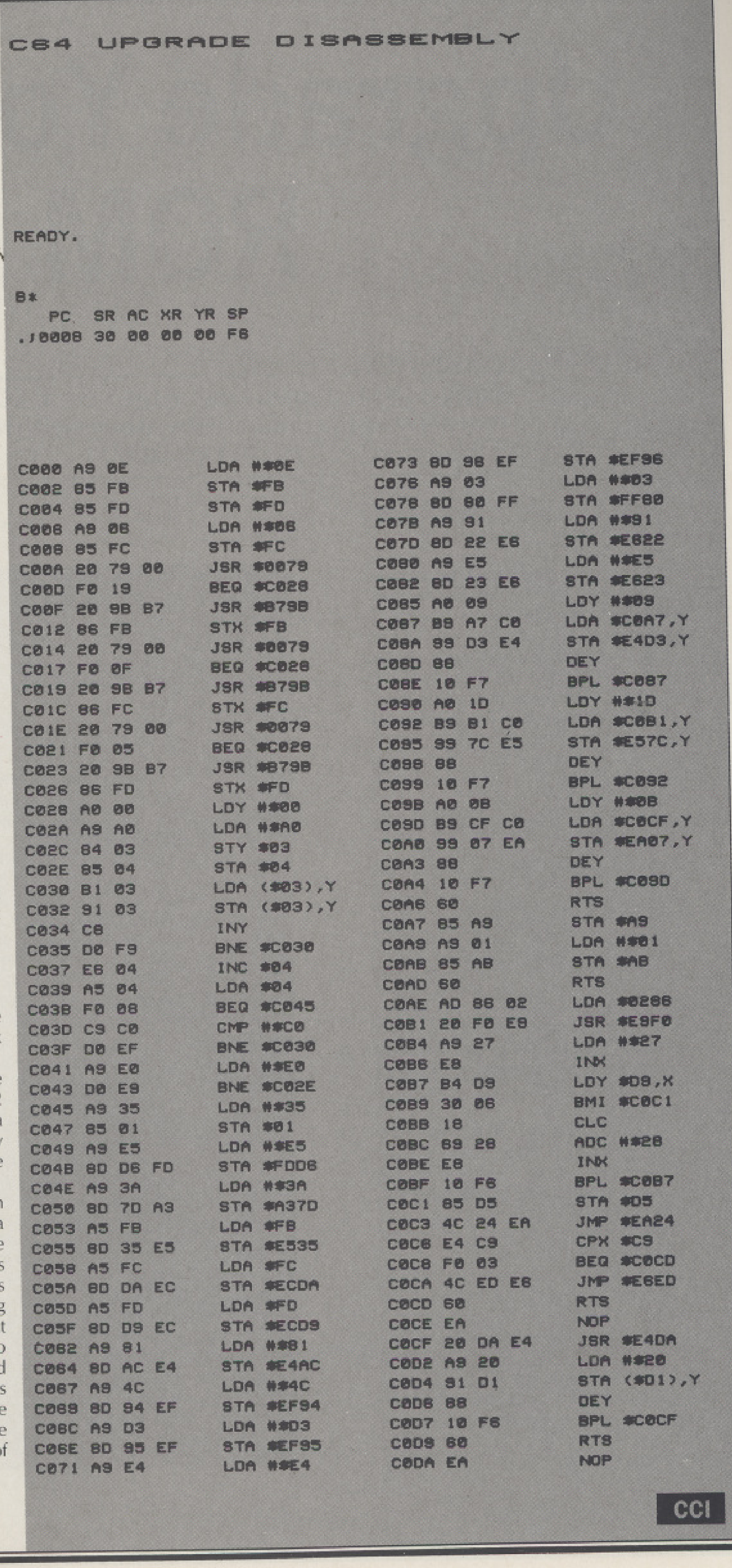
You will usually need to press RUN/STOP + RESTORE to make these changes come into effect after using the SYS call.

Notice that in all versions of the SYS call, you can always tell which ROM is in effect because the RAM has been altered so that when in a 'stationary' mode the message will read READY: (with a colon rather than a full stop). Hence you can always readily tell which version is in operation at any time.

To revert to the original ROM then type POKE 1,55. To get the upgraded ROM back again then type POKE1,53.

You will notice that in my program, the SYS call is followed by the value of 0,12,12 which gives a black character colour on a light grey background and border. This is my own personal favourite but you may have your own that you wish to substitute.

Finally, the entire routine is written in machine code to save time as otherwise a corresponding BASIC program would take the best part of a minute or so. As it stands the entire program takes about 3½ seconds to read in and execute which is not too long to wait! The routine *can* be relocated but only with some difficulty as you will have to find the calls to the three tables of data and compute/alter their absolute addresses. This should not constitute a problem to the serious programmer but I imagine that the location at $C000 will suit the majority of people in any case.



```
C64  UPGRADE  DISASSEMBLY

READY.

B*
   PC  SR AC XR YR SP
.;0008 30 00 00 00 F6

C000 A9 0E        LDA #$0E
C002 85 FB        STA $FB
C004 85 FD        STA $FD
C006 A9 06        LDA #$06
C008 85 FC        STA $FC
C00A 20 79 00     JSR $0079
C00D F0 19        BEQ $C028
C00F 20 9B B7     JSR $B79B
C012 86 FB        STX $FB
C014 20 79 00     JSR $0079
C017 F0 0F        BEQ $C028
C019 20 9B B7     JSR $B79B
C01C 86 FC        STX $FC
C01E 20 79 00     JSR $0079
C021 F0 05        BEQ $C028
C023 20 9B B7     JSR $B79B
C026 86 FD        STX $FD
C028 A0 00        LDY #$00
C02A A9 A0        LDA #$A0
C02C 84 03        STY $03
C02E 85 04        STA $04
C030 B1 03        LDA ($03),Y
C032 91 03        STA ($03),Y
C034 C8           INY
C035 D0 F9        BNE $C030
C037 E6 04        INC $04
C039 A5 04        LDA $04
C03B F0 08        BEQ $C045
C03D C9 C0        CMP #$C0
C03F D0 EF        BNE $C030
C041 A9 E0        LDA #$E0
C043 D0 E9        BNE $C02E
C045 A9 35        LDA #$35
C047 85 01        STA $01
C049 A9 E5        LDA #$E5
C04B 8D D6 FD     STA $FDD6
C04E A9 3A        LDA #$3A
C050 8D 7D A3     STA $A37D
C053 A5 FB        LDA $FB
C055 8D 35 E5     STA $E535
C058 A5 FC        LDA $FC
C05A 8D DA EC     STA $ECDA
C05D A5 FD        LDA $FD
C05F 8D D9 EC     STA $ECD9
C062 A9 81        LDA #$81
C064 8D AC E4     STA $E4AC
C067 A9 4C        LDA #$4C
C069 8D 94 EF     STA $EF94
C06C A9 D3        LDA #$D3
C06E 8D 95 EF     STA $EF95
C071 A9 E4        LDA #$E4

C073 8D 96 EF     STA $EF96
C076 A9 03        LDA #$03
C078 8D 80 FF     STA $FF80
C07B A9 91        LDA #$91
C07D 8D 22 E6     STA $E622
C080 A9 E5        LDA #$E5
C082 8D 23 E6     STA $E623
C085 A0 09        LDY #$09
C087 B9 A7 C0     LDA $C0A7,Y
C08A 99 D3 E4     STA $E4D3,Y
C08D 88           DEY
C08E 10 F7        BPL $C087
C090 A0 1D        LDY #$1D
C092 B9 B1 C0     LDA $C0B1,Y
C095 99 7C E5     STA $E57C,Y
C098 88           DEY
C099 10 F7        BPL $C092
C09B A0 0B        LDY #$0B
C09D B9 CF C0     LDA $C0CF,Y
C0A0 99 07 EA     STA $EA07,Y
C0A3 88           DEY
C0A4 10 F7        BPL $C09D
C0A6 60           RTS
C0A7 85 A9        STA $A9
C0A9 A9 01        LDA #$01
C0AB 85 AB        STA $AB
C0AD 60           RTS
C0AE AD 86 02     LDA $0286
C0B1 20 F0 E9     JSR $E9F0
C0B4 A9 27        LDA #$27
C0B6 E8           INX
C0B7 B4 D9        LDY $D9,X
C0B9 30 06        BMI $C0C1
C0BB 18           CLC
C0BC 69 28        ADC #$28
C0BE E8           INX
C0BF 10 F6        BPL $C0B7
C0C1 85 D5        STA $D5
C0C3 4C 24 EA     JMP $EA24
C0C6 E4 C9        CPX $C9
C0C8 F0 03        BEQ $C0CD
C0CA 4C ED E6     JMP $E6ED
C0CD 60           RTS
C0CE EA           NOP
C0CF 20 DA E4     JSR $E4DA
C0D2 A9 20        LDA #$20
C0D4 91 D1        STA ($D1),Y
C0D6 88           DEY
C0D7 10 F6        BPL $C0CF
C0D9 60           RTS
C0DA EA           NOP
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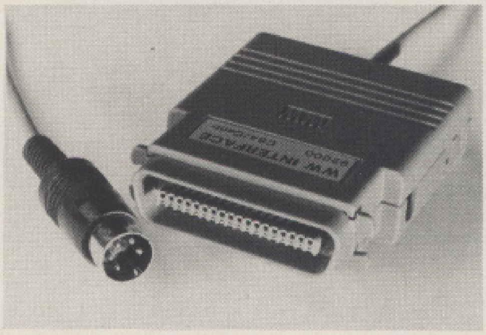

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Now Micro Control Systems have the solution. Just plug the Comprint circuit board inside the Epson, connect the cable supplied to the Serial I/O port on the Commodore computer and Hey Presto! The Comprint fools the Commodore into thinking it is working with a Commodore printer. All the features are there – total emulation. And it even provides a 2K buffer as well.

What's more all the additional features that have made Epson so successful, such as condenced print and other type styles, are accessible directly by the Commodore computer. For the business user the ability to use 15 inch paper (in the MX/RX/Fx-100 range) and print a £ sign (or other Epson special characters) will prove invaluable.

So go on – spoil yourself. If you are the owner of a Commodore personal computer treat yourself to an Epson – and a Comprint of course!

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Sophisticated multi sounds

Cyber Robotics is steering away from robots just briefly to launch a new voice synthesiser.

The Votrax Personal Speech System claims to give 95 per cent correct pronounciation for speech, but also is capable of handling music and other sound effects for multiple purposes. Music, for example, can operate in eight octaves while sounds produced include many of the zaps, pows and whizzes essential to more sophisticated arcade games.

Votrax commands are typed into the keyboard and the synthesiser turns the input into spoken words tailored to the speed and emphasis you designate. Based on the Z80 chip, the synthesiser interfaces with serial or parallel to work on virtually any micro including Commodore's.

Cost is £375 and Cyber Robotics says a few of the uses are automatic phone messages, narration for audio-visuals, speaking textbooks for the blind or voice and sound effects for computergames.

Contact: Cyber Robotics Ltd, Stone, Staffs ST15 0SA. Tel 0785-812121.

Keeping it spotless

Elephant has released several new products to back up its range of floppy disks.

A head cleaning disk is done in the same torque value and anti-static value as a floppy disk and requires no liquid additives or taking the drive apart. Each is said to last for more than 100 cleanings and are available for single or double sided drives. Retail prices is £7.50.

A new cleaning kit from Elephant incorporates screen cleaning solvent, general surface cleaner, anti-static solution and 50 lint free cloths in each CK1 package at a price of £19.50. Each bottle has a spray pump top. Three other kits are available if you need lots of one and none of the other. CK2 has three bottles of the general surface cleaner, a spray pump and 50 cloths; CK3 has three bottles of anti-static solution, a spray pump and 50 cloths; and CK4 has three bottles of screen cleaner, a spray pump and 50 cloths. Each of these also retails for £19.50.

Contact: Dennison Manufacturing Company Ltd, Colonial Way, Watford, Herts WD2 4JY. Tel: 0923-41244.

Letter quality on a budget

CPU Peripherals have come up with a daisywheel printer at about the price of a very good dot matrix.

At £249, the new Uchida DWX-305 incorporates a control and selection panel and works at a speed of 20 cps. It uses the industry standard Qume daisywheel, a multi-strike ribbon cartridge and Centronics and RS232 interface with 256 character buffer. It also allows shadow printing and dot graphics.

Contact: CPU Peripherals Ltd, Copse Road, St Johns, Woking, Surrey GU21 1SX. Tel: 04862-73883.

Presentation on a budget

First Publishing's software arm is releasing a "second generation" package of spreadsheet and graphics program at about half the price of the now popular packages.

At a price of £44.99, PowerPlan 64 is designed for organising sales projections and making presentations. First managing director Sara Galbraith says comparable packages cost from £90 to £100. As with several of First's products, this one comes out of Germany, specifically the Data Becker line of computer programs.

Contact: First Publishing Ltd, Unit 20B, Horseshoe Road, Horseshoe Industrial Estate, Pangbourne, Berks. Tel: 07357-5244.

Help for base beginners

If the word database terrifies you and the thought of using one sends you crumbling into a small heap, help is at hand.

Precision Software, publishers of the ever-popular Superbase, have released Superbase Starter along with a range of applications products to go with it. The database program allows the user to design a tailored layout and enter what information is needed. That information can then be rearranged, selected and output to the screen or printer using function keys and simple commands.

Among the Stepping Stones applications packages available are sorting for records such as club membership, estate agents, sales daybook, purchase daybook, cashbook, job costing and time recording. These formats can be tailored using the Superbase Starter's editor.

Commodore computers which take the package are the 64, SX64 and Plus/4 with disk drives 1541, 2031, 1001, 4040.

Superbase Starter, including a manual, retails for £39.95 incl VAT and Stepping Stones are £9.95 each.

Contact: Precision Software Ltd, 6 Park Terrace, Worcester Park, Surrey KT4 7JZ. Tel:01-330 7166.

Mr Men for the little ones

The Mr Men so popular in children's television and on BBC computers are now available on Commodore with a games package called Here And There With The Mr Men.

Consisting of four games, the programs include Mr Tickle, Mr Greedy and Mr Lazy and can be used for fun or basic education. An instruction manual also is included with ideas for how to make the best use of the package. Among the educational values are learning the differences between left and right, up and down and simple route planning.

It is designed for children aged four to eight years and costs £7.95 cassette, £0.95 disk.

Contact: Mirrorsoft, Holborn Circus, London EC1P 1DQ.

Novel uses

Mirrorsoft informs us that their Star Seeker astronomical program is about to be implemented in the jungles of northern Sulawesi, Indonesia!

It is in relation to an expedition by the Royal Entomological Society, which will be looking into the ecology and diversity of insects in tropical rain forests and in new agricultural areas, according to one of the participants.

Part of the project involves three months of trapping insects using light traps. Since insects' movements are affected by moonlight, the Star Seeker program will be used to monitor the moon's movement, eg computing "the phase, times of rising and setting and the angle of the moon in relation to the mountainous terrain so as to optimise the siting and timing of trapping operations."

Now aren't you intrigued?

The program is a new one published in association with the London Planetarium. The package actually incorporates Star Seeker and Solar System. The first accurately plots prominent stars seen in the night sky depending on what location, direction, time and date you enter. It also allows the user to print out star maps and charts.

The Solar System portion focuses on planets and Halley's Comet which is due to return to the earth's solar system late this year or early in 1986. The information on this program also can be printed out.

The package retails for £9.95 cassette, £12.95 on disk.

Contact: Mirrorsoft, Holborn Circus, Lonson ECIP IDQ. Tel:01-822 3947.

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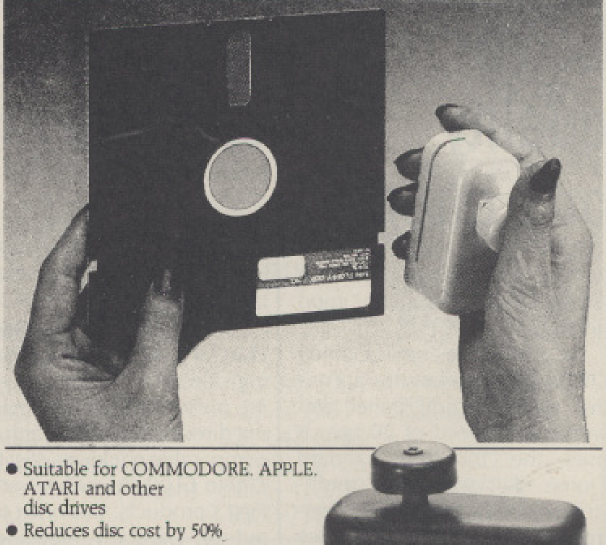

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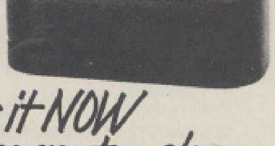

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New drives give CBM alternative

Despite the conservative nature of the UK computer market in the area of disk drives, several companies are nevertheless releasing what they hope will be superior substitutes for the 1541.

One is Commotion, based in Enfield, who will be distributing the Enhancer disk drive from Comtel Group Inc in the USA. Comtel claims its disk drive operating system is the only other legal DOS to work with Commodore machines, the other being a copyrighted Commodore DOS that runs the 1541. This feature affects software compatibility, which has been a problem with many substitute drives which claim much higher speed but actually do not work with some software.

The Enhancer, which uses a direct drive motor, has an external power supply to keep heat away from the unit, and changing the drive location to add drives is done by simply removing a tiny element inside and using the dual serial port. Finally, Comtel claims its DOS increases speed to twice that of the 1541.

Price of the 64-compatible Enhancer is £229 incl VAT.

Meanwhile, Computatill of Lancashire is set to launch its single and twin 5.25 inch disk drives to a decidedly serious audience. Director Keith Denson says the drive is of better quality than the 1541 and is compatible with the 64, VIC 20, PET, C16 and PLus/4. It will also work with the 128 when it is released this autumn.

Denson says that the drive is "about 95 percent compatible" in terms of software, working with anything that does not directly require the Commodore DOS, which wasn't included because of the copyright hurdle. American company MSD designed the operating system used.

Among the advantages of the Computatill system are selected speed improvements. Denson says formatting is done in 17 seconds compared to the 1541's 1 minute 20 seconds and to format, duplicate and verify a complete disk takes 2-3 minutes compared to the 1541's 30-40 minutes.

The single drive retails for £200 plus VAT while the twin drive is £374 ex VAT.

Contacts: Commotion, 241 Green Street, Enfield, Middlesex EN3 7SJ. Tel: 01-804 1378.

Computatill, 77-79 Chadderton Way, Oldham, Lancs OL9 6DH. Tel: 061-652 8006.

Preschool game teaches letters

There's a change in tack coming from Beyond Software, the company responsible for 64 games like Shadowfire and Spy vs. Spy. Beyond is testing out the educational market.

The first game in the new line is Romper Room, which takes the title of a highly successful children's television program in the United States. Aimed at pre-schoolers ages two to seven, Romper Room the computer program teaches the alphabet and simple vocabulary using a friendly bee named Max.

Beyond says the game is "reminiscent of the old favourites 'Watch With Mother' and 'Playschool.' In teaching the alphabet, for example, the letter D makes Max dance and the letter P makes him peek from the side of the screen. The program retails for £9.95 and is available on the 64. Romper Room is being published under license from American company First Star Software Inc.

Contact: Beyond Software, Lector Court, 153 Farringdon Road, London EC1R 3AD. Tel: 01-837 2899.

UNIX emerges

Little bits of news about UNIX may already be finding their way to you through these pages or just by heresay, but a public relations agency is trying to spread the word faster.

Baroness International Public Relations (BIPR) are promoting the operating system as a multiuser standard through a 12 minute audio cassette claimed to tell you "all you ever wanted to know about UNIX." It was put together by the /usr/group/UK, an independent UNIX user group based in the UK. (The group's name looks slightly peculiar because it is written in UNIX command structure).

Well, we hope Commodore users will be a bit more educated than this when they see their first C900 (see July 1985 issue), CBM's sophisticated UNIX based machine scheduled for unveiling in the autumn. Nevertheless, those who know nothing about the operating system because it has been hiding out in academic circles for so many years might get some use out of it and £1.75 is a small price to pay.

Contact: BIPR, 138/140 Wardour Street, London W1. Tel: 01-734 2907.

Fruit for the Commodore

Fruits are a popular target for naming computer equipment and the latest is the banana.

Castle Associates have released a very sophisticated control interface which works on the Commodore PET, 64 and VIC 20. Primary uses are educational, industrial and home, says the company. Among the features are eight independent output relays; optic, diode and fuse protection; a one year guarantee; LED status indicators; anti panic circuits so that on BREAK or RUN/STOP commands all functions are inoperative.

Accompanying manuals contain programs so that the Banana Interface can be used immediately even without experimental hardware such as DC motors, Stepper Motors and other devices that the interface can handle. Castle says the device was tested in schools during the last three terms.

The cost is £175 plus VAT and includes a tutorial handbook and computer cable. (Castle notes that the name stems from the use of 54 four millimeter Banana sockets on the interface.)

Contact: Castle Associates Ltd, Salter Road, Cayton Low Road Industrial Estate, Scarborough, N Yorks YO11 3UZ. Tel:0723-584250.

Scotch goes computer

Audio and video media company Scotch is getting into the computer market with a new line of computer media including cassettes, diskettes and a head cleaning kit.

The personal computer cassettes retail for about 60 pence each and come in three lengths – C10, C15 and C20. Diskettes are 5.25 inch size in packs of two, five and ten.

Scotch has great faith in the disk drive market potential, estimating that more than a quarter of computer-owning households in the UK will have a disk drive by 1988. Hence the company is branching into diskettes. For 48 tpi, single sided double density will be £2.25 and double sided double density £2.99. In 96 tpi, the ssdd's will retail at about £3.45 and dddd's for £3.70.

The head cleaning kit will be for 5.25 inch drives and are expected to retail for £4.95. All of the products will be available through consumer retailers.

Contact: 3M United Kingdom PLC, 3M House, PO Box 1, Bracknell, Berks RG12 1JU. Tel: 0344-426726.

Design pack uses basic light pen

Computer Aided Design need not be confined to the most sophisticated computers, and a Norwich company is distributing such a package for the 64.

CADPACK 64 uses a light pen to create designs directly on the screen. It is menu-driven and gives you options such as draw, box, circle, save, copy, etc. The CADPACK's "object editor" is claimed to allow definitions of shapes such as furniture and electronic circuitry. Each can be saved and recalled later for insertion in a design.

The finished product can be output to a standard dot matrix printer or saved to disk. CADPACK 64 comes in disk version only for £35 including a manual. The required light pen and, of course, printer are not included.

Contact: Adamsoft, 18 Norwich Avenue, Rochdale, Lancs OL11 5JZ. Tel: 0706-524304.

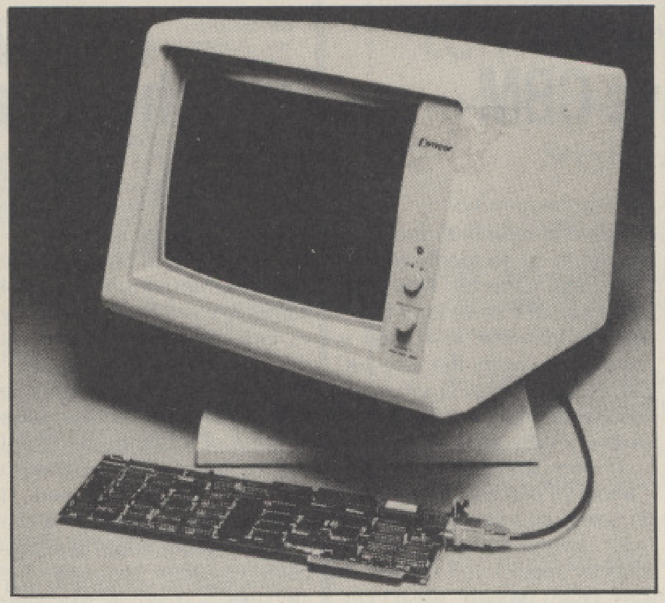
Hard disk for PC goes thin

The successful Winchester disk people, Apstor, have developed a more low profile version of their drives – the Apstor X-Plus.

Just two inches high, the 20 Mbyte drive unit itself is half the height of the standard Apstor Alpha 10 as are the removable cartridges, though they still meet the 5.25 inch standard. As the system is IBM PC compatible, it will also work with the Commodore PC.

The unit is designed to fit on top of the PC drive unit underneath the monitor. On-line capacity is 20 or 30 Mbytes formatted when the user combines a 10 or 20 Mbyte Winchester with a 10 Mbyte removeable drive.

Contact: Apstor Ltd, Unit 5, Victoria Road, Trading Estate, Portslade, Brighton, Sussex BN4 1XQ. Tel: 0273-422512.



Monitor with card for PC

While Commodore dawdles about the business of making a colour expansion card for the PC 10 and PC 20, those that work on IBM will do just as well.

One new one is from X-Data Ltd, wholesalers of a line of personal computer equipment. The STB Super Res400 video adaptor board connects high resolution colour monitors to PCs and retails for £699. With the board, the user can implement any graphics, financial or word processing packages without using drivers.

X-Data also have a new 16-colour monitor with a minimum resolution of 720 by 400 dots to make the most of such displays as computer aided design. The Dyneer 14 CHI-1, as it is billed, retails for £469. For text, the monitor and colour card combined give the same quality as monochrome displays, eliminating the often hazy text displays provided by full colour.

Contact: X-Data Ltd, 750-751 Deal Avenue, Slough Trading Estate, Slough, Berkshire SL1 4SH. Tel: 0753-31292.

Upgrade is modem key

A new range of modems is aiming at a market of sophisticated users who want to start out small in the communications field but won't have to start all over when they upgrade equipment.

The WS3000 range from Miracle Technology starts with the V2123, which operates at CCITT and Bell standard 300 baud and CCITT standard 75/1200 baud and 1200/75 baud full duplex and 600 and 1200 baud half duplex. That can be upgraded to a V22 1200 baud or the third in line, the V22bis with its 2400 baud.

All the modems use the Hayes standard command formula so that many pieces of communications software can be used with the modems. Each WS3000 also has a centronics compatible printer port; phone line sharing facility so the modem distinguishes between data calls and speech calls; and the correct RS232 port for use with databases such as Prestel and Telecom Gold. All have autodial and autoanswer.

Each of the modems can be fitted with an optional high security protection system. Prices start at £295 ex VAT.

Contact: Miracle Technology Ltd, St. Peters Street, Ipswich IP1 1XB. Tel: 0473-50304.

Forth used in 64 data unit

A new data acquisition and control system from Valewells runs on a version of the Fig-Forth progamming language and its serial RS232 interface makes it compatible with the 64.

The VIS1's controller card is housed internally, leaving room for eight more card slots, and runs via 2MHz microprocessor allowing 8K, 16K or 32K of RAM and 16K of ROM. The interface allows the unit to do solely data acquisition and control functions while the computer gets on with its own work.

Valewells says the user need know nothing about assembly-level programming to operate the device, but the company provides varying degrees of support depending on what is required. Prices vary with add-ons. Valewells alone handles more than 24 add-on cards.

Contact: Valewells Ltd, 15 Clarence Parade, Cheltenham GL50 3PA. Tel: 0242-570905.

New range of print buffers

A new range of buffers to allow Commodore computers to be used with several non-Commodore types of printers at higher speeds is now available from A-Line Dataspeed Devices Ltd.

The printer buffers fit inside many dot matrix printers and have memory sizes ranging from 8K to 128K. A-Line's data buffers are for use with daisy-wheel printers, plotters and dot matrix printers with a memory ranging from 8K to 256K.

Among the interface combinations available are serial or IEEE computers to parallel printers and IEEE computer to serial printer.

Contact: A-Line Dataspeed Devices Ltd, 3 Auburn Road, Blaby, Leicester LE8 3DR. Tel: 0533-778724.

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C-ing is Believing: a powerful new language

C is a universal language designed to transcend the hardware and operating system barriers between different machines. Tony Lydeard reveals his first impressions of C Primer Plus, to be followed next month by an in-depth review.

C has been around since 1972 so it's not exactly new. It was created by two programmers who were designing the UNIX operating system and was based on an earlier (called B, would you believe?!). Not only was it used to write UNIX, but it has since been used by professional programmers to write all sorts of commercial software to be used on all sorts of computers. C was designed to be a universal language that transcended the hardware and operating system barriers between different machines.

"Transcending the barriers"

C Power is a recent offering from Pro-Line Software, a Canadian company. It runs on the Commodore 64 with 1541 disk drive (no tape version, I'm afraid — compiling would be virtually impossible, since the program needs to access the library routines as it comes across them in the source code).

The complete package consists of a double-sided disk, a 530-page book called C Primer Plus which explains C, and 44 loose sheets which explain the C64 implementation.

There are only about a dozen commands since C depends on function libraries. To use C, you load the editor and type in your program then ask the compiler software to check your syntax. It there are no errors, the compiler will then translate your universal program (which has been saved as a "source file") into machine-specific code, using routines from the function library wherever necessary. The resulting code is then saved as an "object file". This can subsequently be loaded and run independently of the C software.

"Dead easy"

The important thing is that the original program will look exactly the same whatever computer it was typed on — different compilers just convert the same commands into different object code. The source code from one machine can be transmitted (via a modem or RS232) straight into another, where it is compiled and run. Dead easy, really!

Loading the Shell program enables you to enter standard C source code. How quickly you get used to the notation depands on what languages you are already used to — if you have used a compiled language, such as Pascal or FORTRAN, you'll find it easier than if you've only been used to an interpreted language, such as BASIC or Logo.

When you do get the hang of it, you'll find that C has another virtue: not only is it portable, as I've already described, but it it well worth porting. "Powerful" and "flexible" are two words that are grossly overused in describing computer software but they do apply to C.

"Luxurious facilities"

The C64 has a lot of things going for it. One of the most notable for programmers is its powerful and flexible (whoops) screen editor. Power C's is better! Four-way scrolling and a cut-and-paste facility are real luxuries that you'll find yourself using time and time again.

The language itself is better than C64 BASIC but then so are most languages. How much better you'll have to wait until next month to find out. I'll have a chance to wade through those 574 pages by then.

"Is the price right?"

At £119.95 for the package, it's hard to recommend that you rush out and buy it. If you're thinking of writing a best-selling program that can be adapted for most machines, though, it could be the most worthwhile £119.95 you ever spent.

Contact: Pro-Line Software Ltd, 755 The Queensway East, Unit 8, Mississauga, Ontario, Canada.

UK contact: Pitman Publishing.

CCI

If you have come across any useful hints and tips, why not share your knowledge with other CCI readers?

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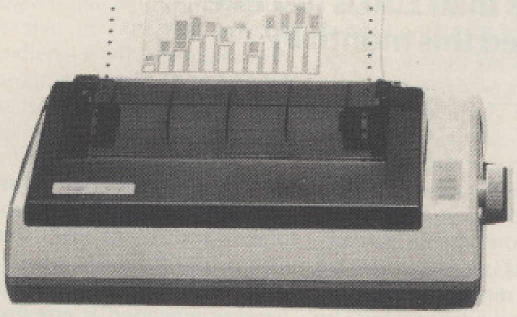

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Getting Back To Business

A suite of three programs costing less than £20 is just one of the business packages evaluated this month by Tony Lydeard

TREBLE TOP

Triangle is described by its publishers Argus as an Integrated Wordprocessor, Data Base, Spreadsheet. In fact, it is a suite of three separate programs which have the ability to read files generated by each other. This is useful in itself but it would have been nice to see the level of integration carried much further.

Having started on a note of criticism, it is worth pointing out the package's major virtue. As value for money, it is very hard to think of a software package that even comes close. Less than £20 for a fair word processor, a reasonable spreadsheet and an adequate database is a bit like charity. I can imagine other software houses holding up their hands in horror – and with good cause.

So what do the programs do?

Tri-Word

The Word Processor enables text to be entered, manipulated, formatted and printed.

Although any width can be printed out, the video display is limited to the C64's 40 columns. This is sensible in as much as the text doesn't keep jumping back and forth as you type but can be a little confusing if tables are being entered.

It is possible to define a "range" which can subsequently be moved to another part of the script, deleted or copied. This process is limited to complete lines (on screen) so these processes are effectively confined to paragraph manipulation – a minor irritation if you are accustomed to a Word Processor which will cope with partial lines but insignificant if this is your first such program.

Other features include the facility to enter variables into standard documents (just like Readers' Digest!); saving to and loading from disk; text justification and centering (on printer but not on screen); searching for a particular word and automatic page numbering – all standard Word Processing characteristics.

The program automatically carries words over to the line below if they won't fit – again, only on printout but not on the screen.

As a Word Processor, Tri-word is not exceptional but it is a Word Processor and that beats the pants off any typewriter.

Tri-Calc

Triangle's spreadsheet, like all spreadsheets, represents a huge sheet of paper divided into rows and columns (60 rows by 40 columns).

Each "cell" is uniquely defined by its row number and column number – eg r32c12. A "range" or block of cells can be defined by the use of colons – for example, r1:5c1:4 refers to the top five rows of the leftmost four columns. This is not the convention adopted by the majority of spreadsheets but it seems to work OK.

Values, text, expressions or formulae can be entered into the cells. Formulae and expressions can contain references to other cells, thereby enabling fairly complicated and/or time-consuming calculations to be carried out very quickly and easily. Altering entries makes it possible to carry out "what if" exercises in order to make management decisions. Recalculation can be automatic after every entry or the user can choose to make several alterations before instructing the program to work out the changes to the rest of the sheet.

Again, this is not the best spreadsheet on the market, but it does work.

Tri-File

The Database is disk-based as opposed to memory-based. This gives advantages in capacity, but limits the speed of access to the information it contains.

Taking an address book as an example, each name and address is referred to as a "record" with each line being a "field" within that record. The whole collection of records is called a "file". Tri-File allows up to 17 fields per record and up to 29 characters per field. The number of records is limited only by the storage capacity of the disk.

When setting up a file, the user can name the fields (which are also numbered) and specify the length of each field. A blank form is displayed on the screen which can then be filled in. When a record has been completed, it can be stored to disk.

Searching the file for a particular record can be done by merely specifying a field and a sequence of letters or numbers which will be found in that field. The entire record will be displayed when the correct match is found. If more than one record meets the criteria they will be displayed in turn.

Records can be added, deleted or amended at any time. Printing is quite straightforward and can be any number of fields of the chosen record.

It is possible to use Tri-File records as the variables to fill in gaps in Tri-Word documents – look out, Readers' Digest!

Like its fellows, the third side of the Triangle is functional rather than coruscating.

General

Triangle's documentation is well-written but sparse. Bearing in mind that it is likely to be used by beginners, a little more hand-holding might have been in order. A useful summary of commands is printed in each section and "help" screens are available at all times in case you can't find your manual.

I found it infuriating to have to use different keys to perform the same function in different sections and the idiosyncrasies of the system will be frustrating to those who have used other business packages.

These whinges apart, I have to say that as an introduction to Business Software, Triangle has no competition that I know of. There are certainly better individual programs around in all three categories but Triangle's price makes it well worth trying first.

Contact: Argus Press Software, Liberty House, 222 Regent Street, London W1R 7DB. Tel. 01-439 0666.

INSTANT RECALL

If you're thinking of investing in a database program for your C64, there are a number of decisions to make. Probably the most important of these is whether to go for a memory-based system or a disk-based one.

A database that stores each record to disk as it goes along has a speed handicap when compared with a system which stores a whole file in memory. Conversely, a memory-based program places a restriction on the size of files that can be handled – a 64K computer with a program already in it can hold less data than a 170K disk. It's also worth remembering that the disk-based option doesn't need to leave much of the computer's memory free for data – there's a space available for those clever little wrinkles that enable you to manipulate the data in all sorts of wonderful ways. Of course, if you don't own a disk drive the decision is made for you!

"What do you really need?"

Before tackling this decision, it's a good idea to give some thought to what sort of data you're going to be manipulating and what sort of manipulations you intend carrying out. Not everybody needs heaps of storage space or all the bells and whistles that the more extensive (and expensive) programs can provide. After all, you wouldn't buy a filing cabinet to keep a few dozen Name and Address cards in, would you?

The first database you set up is likely to be an Address Book and this is the example that Supersoft use in the instruction book for Instant Recall.

At £17.95 for the cassette version or £19.95 if you prefer it on disk, Instant Recall is not the cheapest database around – but then it's not likely to lead you into the bankruptcy court either. In case you hadn't guessed, it's a memory-based program.

There's room in the computer for 30,900 characters of data, which is enough for most address books (or software libraries, or club membership details etc.). Each record can have up to 15 fields and each field can contain up to 32 characters, provided that the maximum of 255 characters per record isn't exceeded. A normal address record can be restricted to about 100 characters, so there's room for over 300 addresses.

Before starting to make entries, it's worth taking a bit of time on the design of the blank form that is going to contain the data. If you leave too much space you're going to reduce the number of records that can be stored. On the other hand, making the fields too small will mean having to abbreviate information later on. Instant Recall has no facility for modifying the form once data has been entered, which can be a little annoying if you find that the fiftieth address you come to type in needs six lines and you've only allowed five!

Instant Recall offers most of the usual search facilities, with any field being used for the search criteria. It doesn't sort the records but presents them in the order in which they were entered. This doesn't matter particularly except when you want to print out an alphabetical list. (This can be done by specifying search criteria for each letter in turn – but it's a bit laborious.)

"Versatile facilities"

The facilities for Printing are quite versatile. Any number of fields can be printed out, in any order and in a variety of layouts. The program supports parallel (Centronics-type) printers and control modes can be transmitted. Another potentially useful feature is the conversion utility which is included to allow files created by the database to be read by other programs.

The program is fast – faster even than other memory-based databases I have used. This feature, combined with the printout flexibility, makes up for its one or two shortcomings. The part menu, part memorising-the-manual nature of its operation will take a little while to get used to, as will the manual itself. Like far too many software manuals, this document has no index and no command summary. Also, there appears to be no way of relating the fields to each other in order to process numerical data.

All in all, not a bad little program. If your requirements of a database are not too demanding you could do a lot worse.

Contact: Supersoft, Winchester House, Canning Road, Wealdstone, Harrow, Middlesex HA3 7SJ. Tel: 01-861 1166.

STICKY FINGERS

Whatever you want to write, a Word Processor makes it easier. You can make corrections, insert an extra paragraph or move bits of text around without having to start from scratch every time. Thank you letters are a doddle – erase Auntie Mavis and type in Uncle George; open up a space and type handkerchiefs where you had socks and there's another letter all done. (Mind you, you'll have to think of something else to fill up the rest of Boxing Day.)

The trouble with Word Processors is that they aren't like typewriters. You have to learn how to use them. You have to type in all your text, then configure your printer, then watch the letters appear.

A software package described as a "Complete Beginners Wordprocessing Course" sounds like a good idea. This is how Honeyfold Software describe Honeyscript and to save you wasting time working out whether it's a Wordprocessing Course for Complete Beginners or a Complete Wordprocessing Course for Beginners, I'll tell you.

It's a Word Processor with an instruction booklet.

Admittedly, the instruction booklet does contain a tutorial section and there are a number of features built into the program to prevent silly errors, but this is really no more of a "course" than any other Word Processor I have used.

"A typist's-eye view"

Unlike most WP programs, Honeyscript gives a screen display which looks rather like a typist's-eye view of a typewriter. The cursor is a small arrow which moves along a scale beneath the "base line", which is where all the action takes place. As each line is typed in, the display scrolls up leaving the base line free for the next line of text. There is a menu from which you have to select your activity after first setting the width of your text (up to 80 cols), telling the computer whether disk or tape was in use and specifying upper/lower case or upper case/graphics.

Most of the standard WP features are present, including tabs; insert mode; search and replace; delete/insert lines; justification; loading and saving of files; altering screen colours. You are offered the option of auto-repeat on all keys and there is a special "vertical type" feature. This enables you to type words down the page rather than across it – quite a clever bit of programming but of limited use in the normal course of events.

"Easy to pick up"

In use, Honeyscript is pretty easy to pick up. The selection of options from a menu means that there is not too much to remember and helps a beginner to do some word processing almost straight away. The majority of selections are greeted with an "are you sure" message which requires an affirmative input before the command is executed – useful when you're starting but a little annoying when you're more confident because of the extra keystrokes that you have to make.

At the price (£14.95 for the tape version or £17.95 if you prefer it on disk), Honeyscript is not too expensive. If you're only going to be doing the occasional bit of Word Processing, it's not bad value. The continual reminders might prove helpful under these circumstances as well. For more regular writers, the extra expense of a more sophisticated package will prove worthwhile in the long run.

Contact: Honeyfold Software, Standfast House, Bath Place, Barnet, Herts. Telephone: 01-441 430. **CCI**

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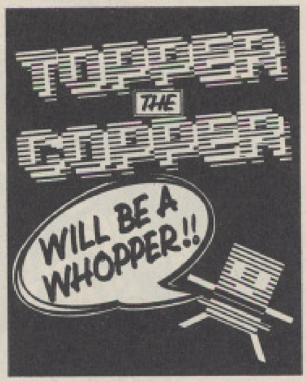

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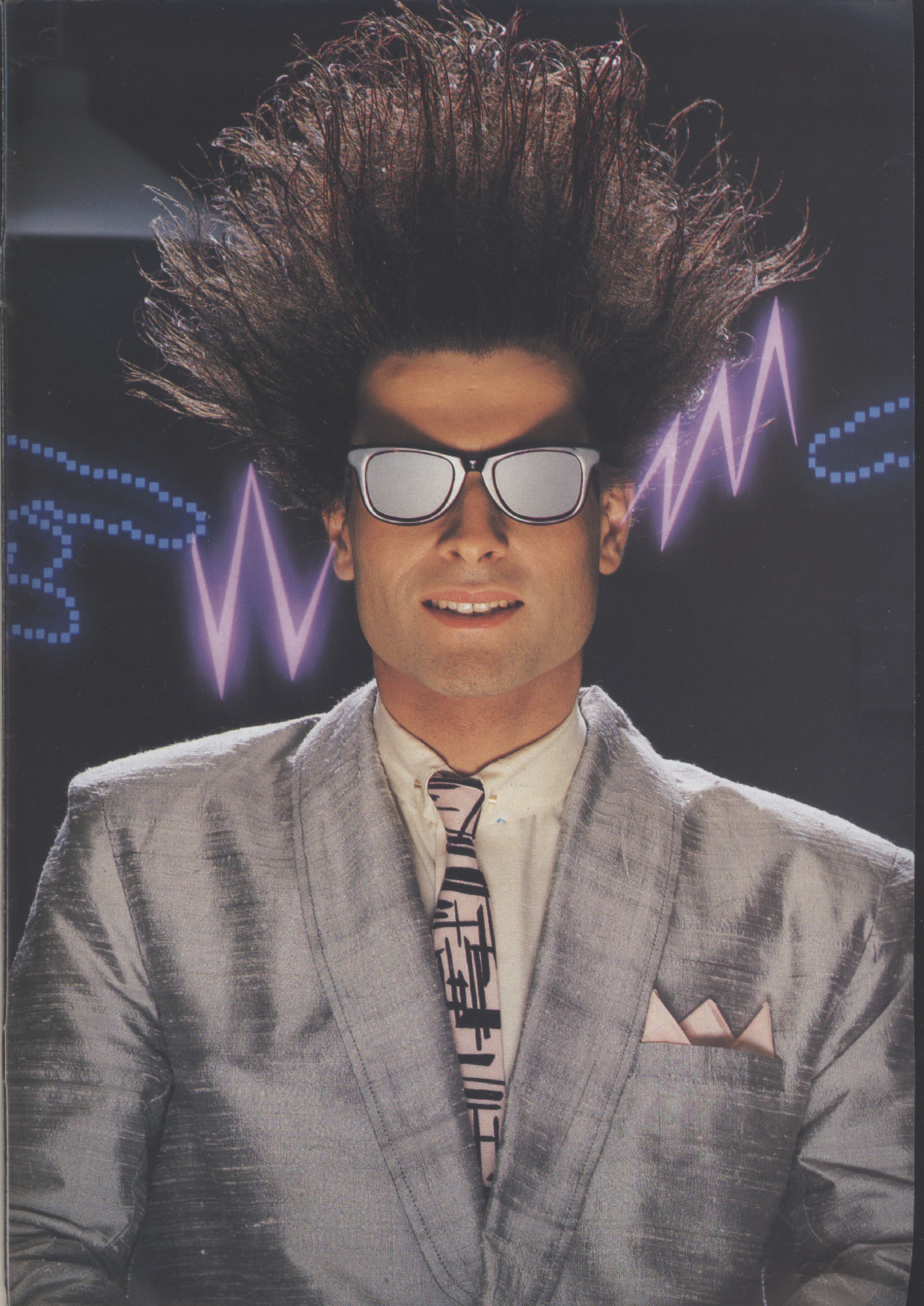

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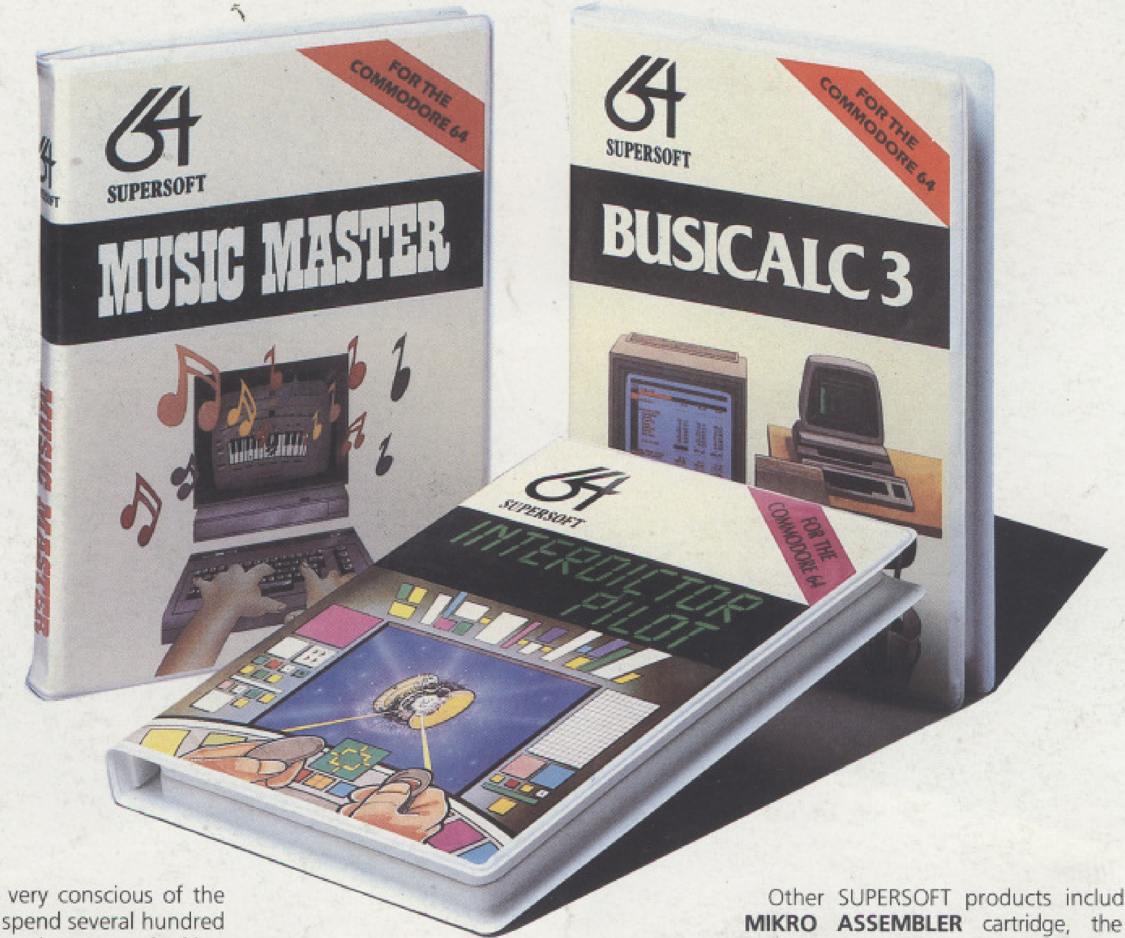

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